UPort 1200/1400/1600 Series

User's Manual

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www.moxa.com/product

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UPort 1200/1400/1600 Series
User's Manual

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1

Introduction

The Moxa UPort 1200/1400/1600 are advanced USB-to-serial converters that add 2, 4, 8, or 16 serial ports to a PC through the PC's USB port. The UPort 1200/1400/1600 are compatible with both new and legacy RS-232 or RS-422/485 devices. These plug and play USB-to-serial converters are ideal for mobile, instrumentation, and point-of sale applications.

In this manual, we refer to the products in the series collectively as the **UPort 1200/1400/1600 Series**, or simply as the **UPort**. The UPort 1200/1400/1600 Series includes the following models:

- UPort 1250 2-port RS-232/422/485 USB-to-serial converter
- UPort 1250I 2-port RS-232/422/485 USB-to-serial converter w/ isolation protection
- UPort 1410 4-port RS-232 USB-to-serial converter
- UPort 1450 4-port RS-232/422/485 USB-to-serial converter
- UPort 1450I 4-port RS-232/422/485 USB-to-serial converter w/ isolation protection
- UPort 1610-8 8-port RS-232 USB-to-serial converter
- UPort 1650-8 8-port RS-232/422/485 USB-to-serial converter
- UPort 1610-16 16-port RS-232 USB-to-serial converter
- UPort 1650-16 16-port RS-232/422/485 USB-to-serial converter

The following topics are covered in this chapter:

- ❑ **Overview**
- ❑ **ADDC™ (Automatic Data Direction Control) for RS-485**
- ❑ **Package Checklist**
- ❑ **Product Features**
- ❑ **Product Specifications**
- ❑ **Panel Layout**
- ❑ **Dimensions**

Overview

UPort 1200/1400/1600 Series products are easy to install and use. After installing the drivers on your PC, connect the UPort to your computer, plug in your serial devices, and you're ready to go. Programming is NOT required, and you do not need to worry about IRQs, configuring a board, power requirements, or connection schemes.

UPort 1200/1400/1600 Series products are compliant with USB 1.1, and 2.0 specifications, and meet the 480 Mbps high-speed requirement of Hi-Speed USB 2.0. Using your computer's USB ports to connect serial devices reduces the total cost of ownership, investment in hardware, and long term management and integration costs.

The UPort 1250 and UPort 1400 converters support both bus power and external power. The UPort 1250I, UPort 1600-8, and UPort 1600-16 converters support external power only. When using bus power, the UPort will get 500 mA through the laptop's or workstation's USB port. When an external power adaptor or power cord is used, the UPort will only get 100 mA through the laptop's or workstation's USB port.

ADDC™ (Automatic Data Direction Control) for RS-485

ADDC™ (Automatic Data Direction Control) makes it easier to manage 2-wire RS-485 half-duplex connections, eliminating the need for software interference. This means that it is not necessary to write extra code for Windows applications to control the half-duplex protocol. ADDC™ intelligence is built into the UPort 1200/1400/1600 USB-to-serial converters that support the RS-485 serial interface.

Package Checklist

Moxa's UPort 1200/1400/1600 products are shipped with the following items:

Standard Accessories

- UPort 1200, 1400, or 1600 USB-to-serial converter
- 1 USB cable
- Document and Software CD-ROM
- UPort 1200/1400/1600 Quick Installation Guide (printed)
- Power Adaptor (UPort 1250I/1450/1450I/1600-8) or Power Cord (UPort 1600-16)

Optional Accessories

- Wall Mount Kit
- Din-Rail kit
- Magnets × 2 (magnets are used to attach the UPort converter to the PC case; suitable for UPort 1400/1600-8)
- Mini DB9F-to-TB adaptor × 1

NOTE: *Please notify your sales representative if any of the above items are missing or damaged.*

Product Features

UPort 1200/1400/1600 Series products have the following features:

- Hi-Speed USB 2.0 supported (up to 480 Mbps)
- Additional I/O or IRQ not required
- Serial transmission speed up to 921.6 Kbps
- 128-byte FIFO and on-chip H/W, S/W flow control

- Built-in 15 KV ESD protection
- Windows 2000/XP/2003/Vista (x86, x64), Win CE5.0, Linux 2.6.x drivers supported
- Both bus power and external power supported (UPort 1410/1450/1450I)
- Suitable for 4-wire RS-422/485 and 2-wire RS-485 applications
- Easy maintenance with LED display and management software
- IP30, rugged metal case
- COM port assignments maintained across different PCs
- Optional magnet accessories for attaching to the PC's housing
- Mini DB9 female to terminal block attachment for easy wiring
- Wall mount and DIN-rail accessories available

Product Specifications

USB	
Compliance	USB 1.1/2.0 compliant
Connector	USB type B
Speed	480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)
Serial Interface	
Number of Ports	UPort 1200: 2 UPort 1400: 4 UPort 1600-8: 8 UPort 1600-16: 16
Serial Standards	UPort™ 1410/1610: RS-232 UPort™ 1250/1250I/1450/1450I/1650: RS-232/422/485
Connectors	DB9 male
Serial Line Protection	
ESD Protection	15 KV embedded
Optical Isolation Protection	2 KV (UPort™ 1250I/1450I only)
Performance	
Baudrate	50 bps to 921.6 Kbps
Serial Communication Parameters	
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS, XON/XOFF
FIFO	128 bytes
Serial Signals	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w	TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w	Data+(B), Data-(A), GND
RS-485 Data Direction	ADDC™ (Automatic Data Direction Control)
Driver Support	
Operating Systems	Windows (2000, XP x86/x64, 2003 x86/x64, Vista x86/x64) and WinCE 5.0, Linux 2.6.x

Physical Characteristics	
Housing	SECC sheet metal (1 mm), IP30 protection
Weight	UPort 1200: Product only: 180 g (0.40 lb) Packaged: 660 g (1.45 lb) UPort 1400: Product only: 720 g (1.59 lb) Packaged: 1345 g (2.96 lb) UPort 1600-8: Product only: 835 g (1.84 lb) Packaged: 1435 g (3.16 lb) UPort 1600-16: Product only: 2475 g (5.45 lb) Packaged: 3485 g (7.68 lb)
Dimensions	UPort 1200: 77 x 26 x 111 mm (3.03 x 1.02 x 4.37 in) UPort 1400: 204 x 30 x 125 mm (8.03 x 1.18 x 4.92 in) UPort 1600-8: 204 x 44 x 125 mm (8.03 x 1.73 x 4.92 in) UPort 1600-16: 440 x 45.5 x 198.1 mm (17.32 x 1.79 x 7.80 in)
Environmental Limits	
Operating Temperature	0 to 55°C (32 to 131°F)
Operating Humidity	5 to 95% RH
Storage Temperature	-20 to 75°C (-4 to 167°F)
Regulatory Approvals	EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV
Power Requirements	
Power Consumption	UPort™ 1250 (bus power): 360 mA @ 5 VDC UPort™ 1250I (12 to 48 VDC external power): 200 mA @ 12 VDC UPort™ 1410 (bus power): 180 mA @ 5 VDC UPort™ 1450 (12 to 48 VDC external power): 260 mA @ 12 VDC UPort™ 1450I (12 to 48 VDC external power): 360 mA @ 12 VDC UPort™ 1610-8 (12 to 48 VDC external power): 230 mA @ 12 VDC UPort™ 1650-8 (12 to 48 VDC external power): 340 mA @ 12 VDC UPort™ 1610-16: 130 mA @ 100 VAC UPort™ 1650-16: 150 mA @ 100 VAC
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/warranty

Panel Layout

UPort 1250

UPort 1250I

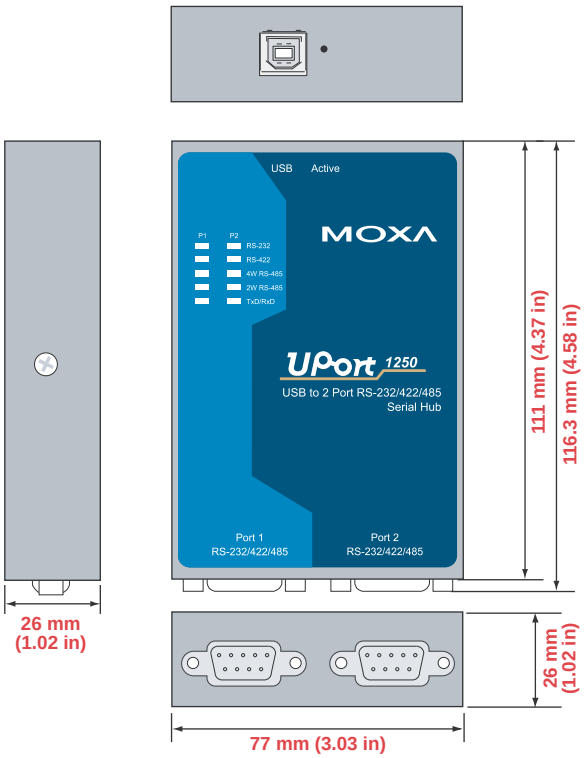
UPort 1410/1450/1450I

UPort 1610-8/1650-8

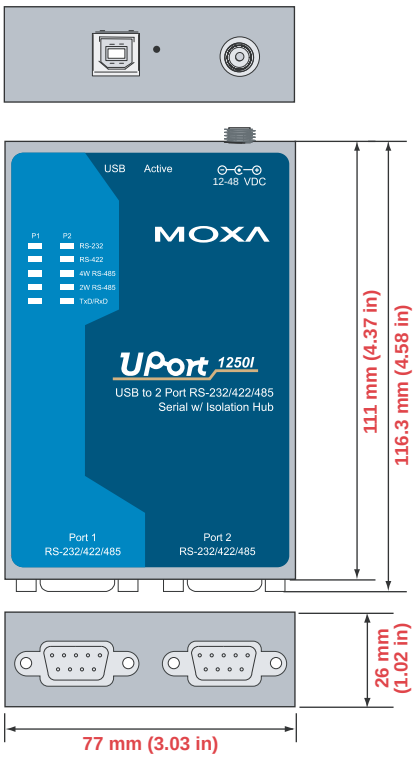
UPort 1610-16/1650-16

Dimensions

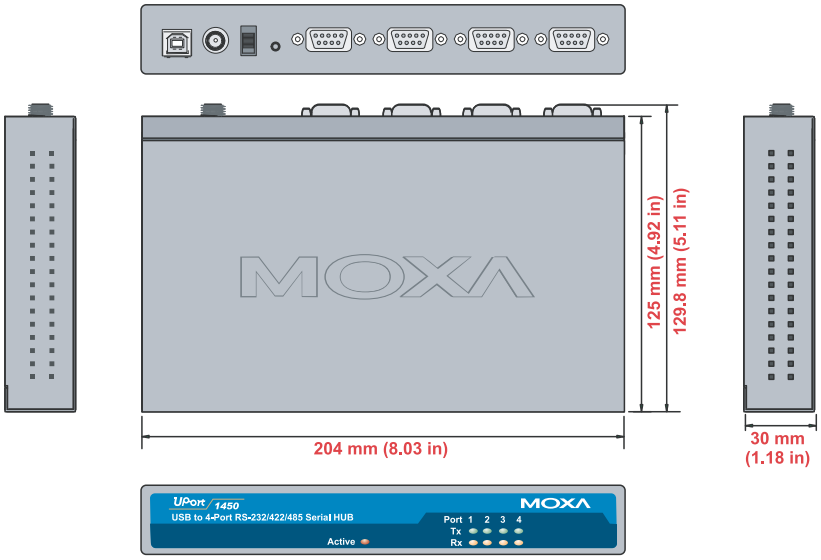
UPort 1250



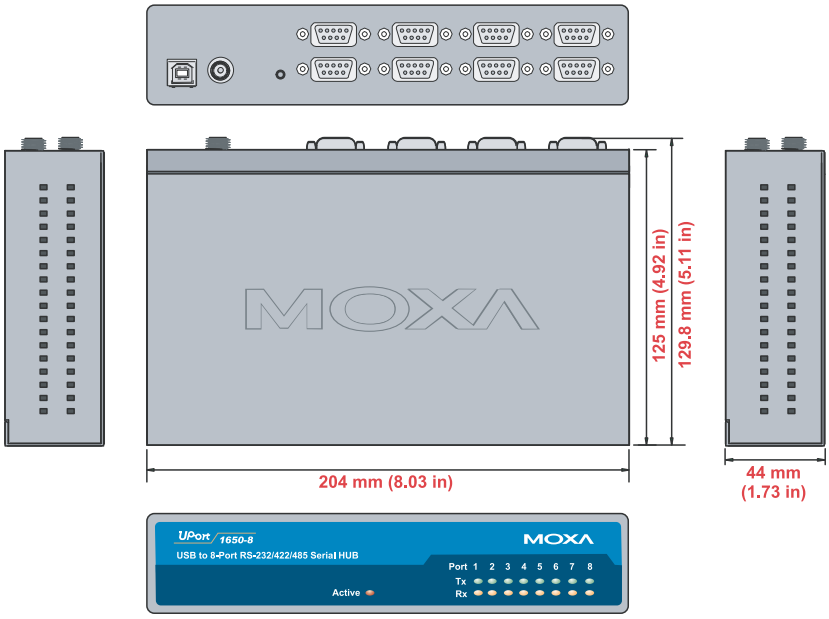
UPort 1250I



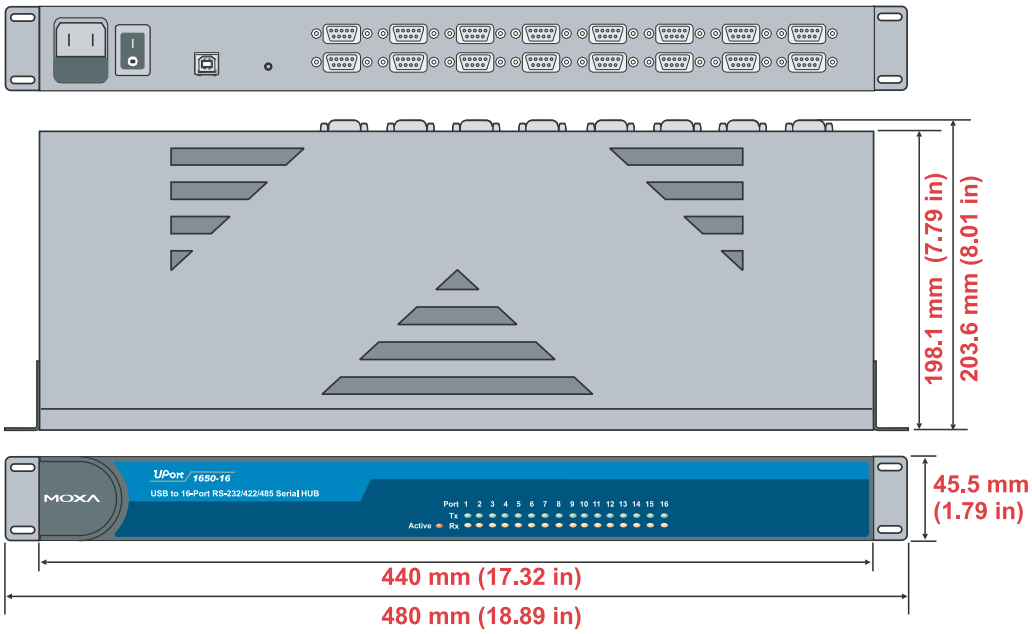
UPort 1410/1450/1450I



UPort 1610-8/1650-8



UPort 1610-16/1650-16



2

Driver Installation

In this chapter, we use Windows XP to illustrate how to install the UPort 1200/1400/1600 USB-to-serial converters. The procedures for Windows 2000/2003 and Vista are essentially the same.

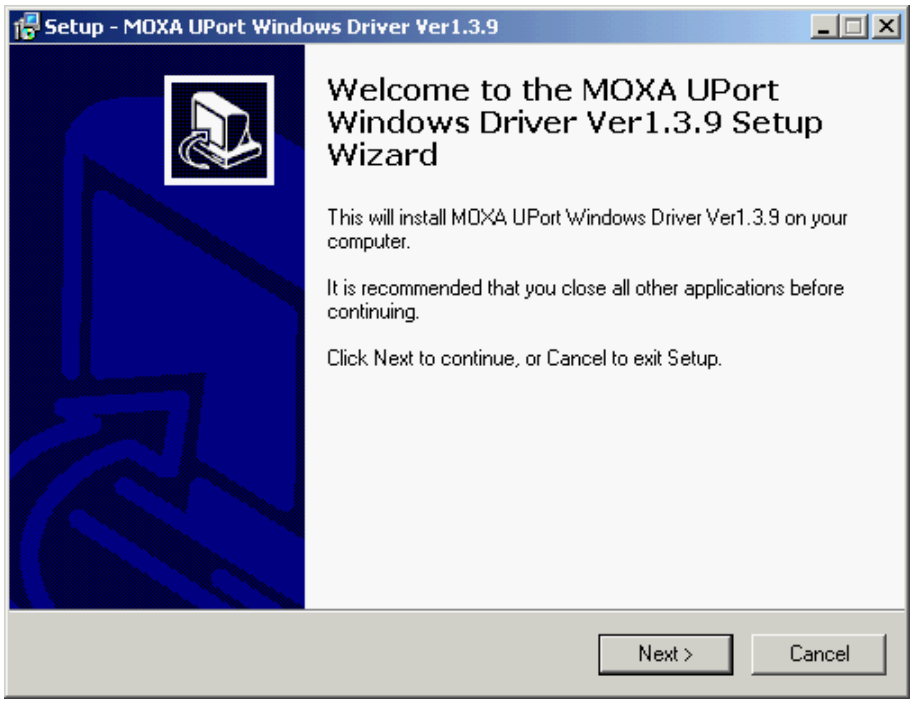
We recommend installing the UPort driver first, before connecting the UPort to your computer's USB port.

The following topics are covered in this chapter:

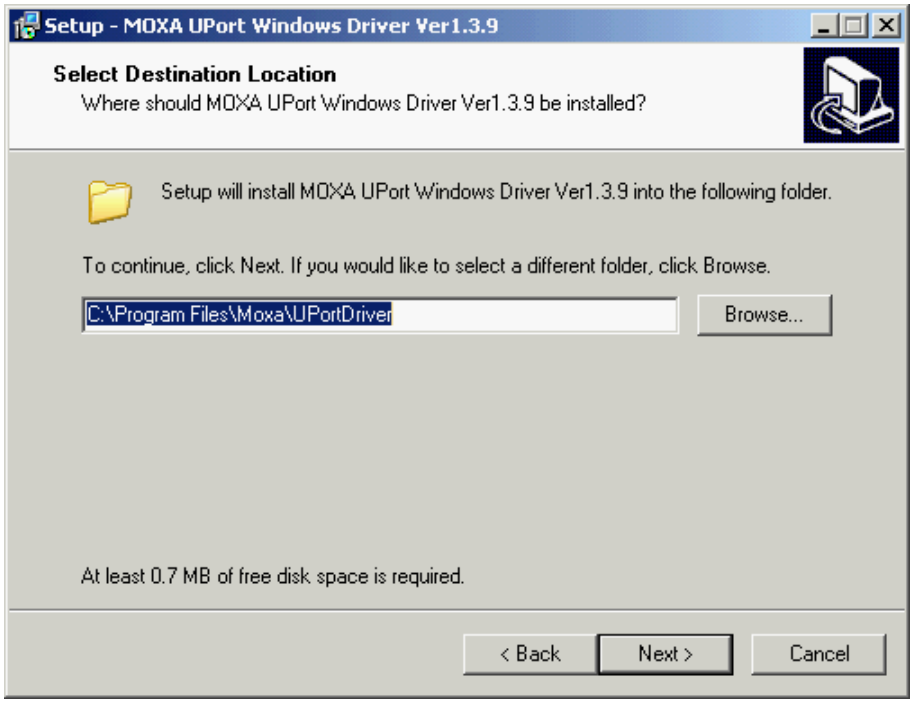
- **Installing the Windows Driver**
  - Hardware Description
  - Plugging in the UPort
  - Configuring the Ports
  - Uninstalling the UPort
  - Uninstalling the Driver
- **Installing the Windows CE Driver**
  - Installation with a CAB File
  - Removing the Moxa Win CE 5.0 Driver
  - Installation with an Installation Package
  - Configuring Serial Parameters
  - Removing the Driver from a Target
- **Installing the Linux Driver**
  - Linux Kernel 2.6.x
  - Driver Files
  - Module Driver Configuration
  - Setting the Serial Parameters
  - Troubleshooting

Installing the Windows Driver

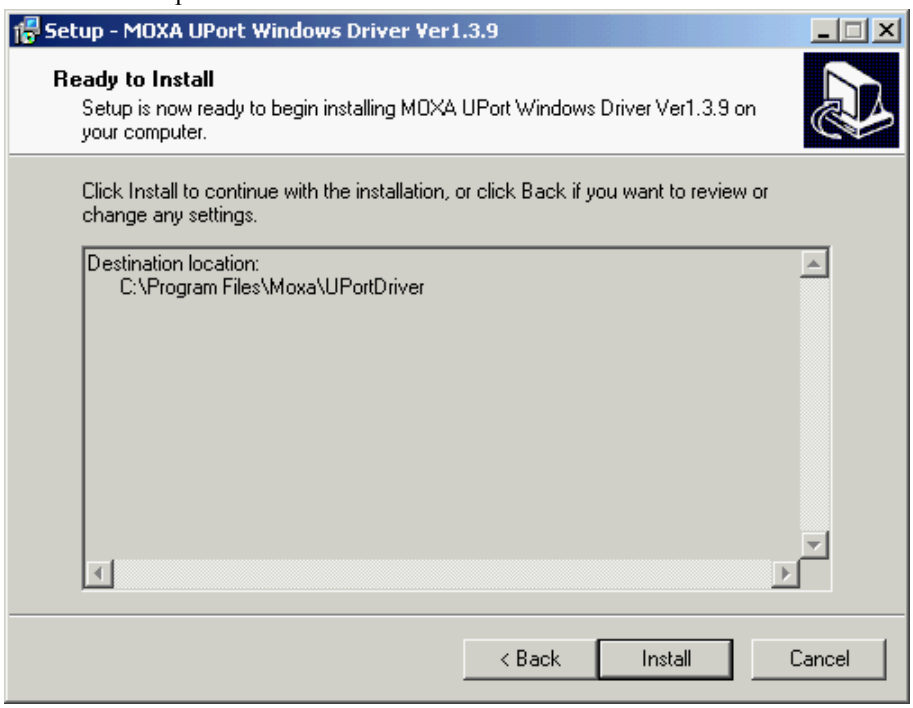
1. Run the Setup Wizard located on the UPort 1200/1400/1600 Document and Software CD-ROM. Click **Next** to start installing the driver.


Setup - MOXA UPort Windows Driver Ver1.3.9
Welcome to the MOXA UPort Windows Driver Ver1.3.9 Setup Wizard
This will install MOXA UPort Windows Driver Ver1.3.9 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

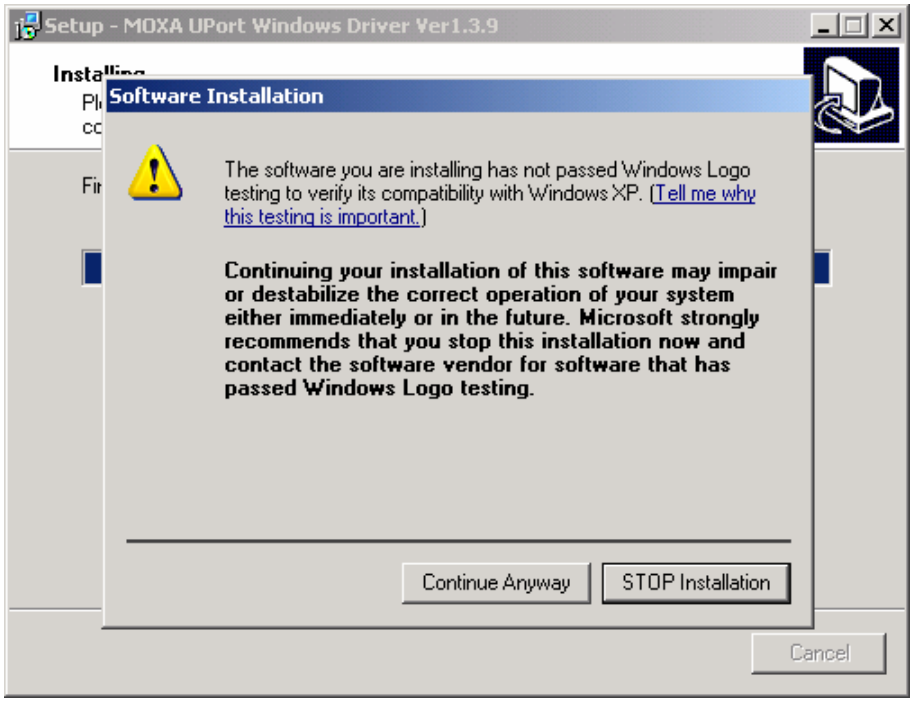
2. Click **Next** to install the driver in the indicated folder.


Setup - MOXA UPort Windows Driver Ver1.3.9
Select Destination Location
Where should MOXA UPort Windows Driver Ver1.3.9 be installed?
Setup will install MOXA UPort Windows Driver Ver1.3.9 into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\Moxa\UPortDriver
Browse...
At least 0.7 MB of free disk space is required.
< Back
Next >
Cancel

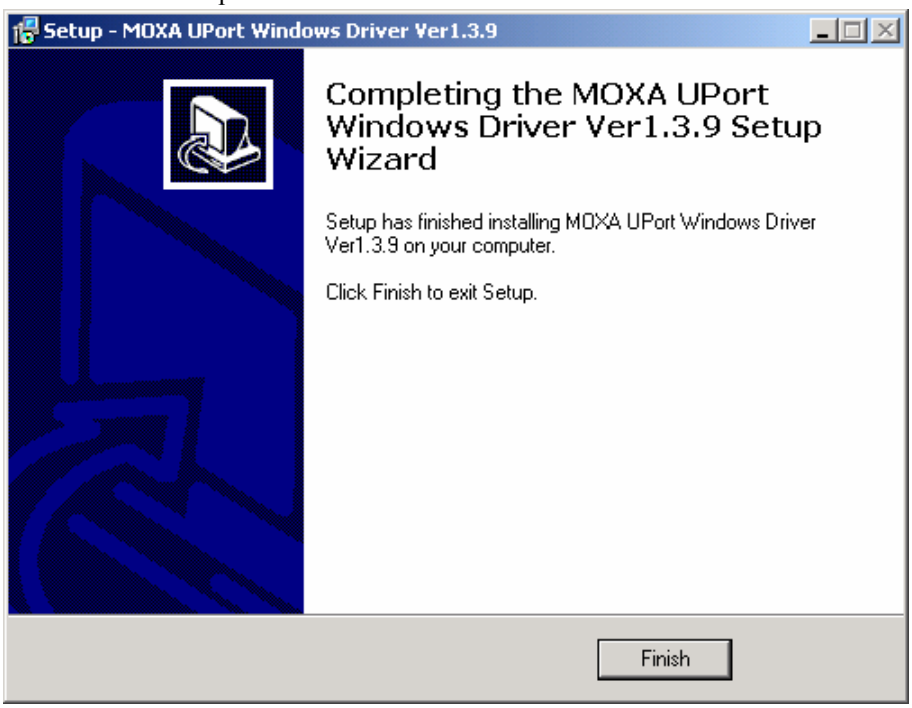
3. Click **Install** to proceed with the installation.


Setup - MOXA UPort Windows Driver Ver1.3.9
Ready to Install
Setup is now ready to begin installing MOXA UPort Windows Driver Ver1.3.9 on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\Moxa\UPortDriver
< Back
Install
Cancel

4. If a caution Window pops up saying that although this software has not passed Windows logo testing, the driver has already been tested and shown that it can support Windows OS, click **Continue Anyway** to proceed.


Setup - MOXA UPort Windows Driver Ver1.3.9
Software Installation
The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation
Cancel

5. Click **Finish** to complete the driver installation.


Setup - MOXA UPort Windows Driver Ver1.3.9
Completing the MOXA UPort Windows Driver Ver1.3.9 Setup Wizard
Setup has finished installing MOXA UPort Windows Driver Ver1.3.9 on your computer.
Click Finish to exit Setup.
Finish

Hardware Description

We recommend installing the driver before connecting the UPort to your PC. Some UPort models require an external power adaptor or cord, and other models support both external and bus power.

	UPort 1250	UPort 1250I	UPort 1400	UPort 1600-8	UPort 1600-16
Bus Power	---	---	√	---	---
External Power (adaptor)	√	√	√	√	---
External Power (cord)	---	---	---	---	√

If you want to use bus power with the UPort 1400, set the DIP switch to **bus** when you connect the USB cable between the host PC and the UPort 1400.

Using an External Power Source

The UPort 1250I, UPort 1450/1450I, and UPort 1600-8 come with a power adaptor for connecting to an external AC power source. UPort 1410 users can purchase a power adaptor separately. The UPort 1600-16 comes with a power cord as a standard accessory.

If the power is properly supplied, the Active LED will glow a solid green.

Buzzer (UPort 1400 and 1600 only)

The UPort 1400 and UPort 1600 will sound the built-in buzzer twice when the power is turned on. You will also hear the buzzer when using the **Locate** function from the driver property page of the UPort utility.

Connecting to a Serial Device

Connect the serial cable from the UPort to a serial device that supports the RS-232 and/or RS-422/485 interface. The UPort 2000's serial ports use DB9 male connector with standard RS-232 pin assignment.

LED Indicators

UPort 1250/1250I

There are five LEDs per port for indicating the status of the ports. The LEDs are listed under P1 and P2.

LED Name	LED Color	LED Function
Active	Red	Power is on
	Off	Power is off, or power error condition exists
RS-232	Red	Port is configured for RS-232 operation
RS-422	Red	Port is configured for RS-422 operation
4W RS-485	Red	Port is configured for 4-wire RS-485 operation
2W RS-485	Red	Port is configured for 2-wire RS-485 operation
TxD/RxD	Orange	Port is receiving data from attached device
	Green	Port is transmitting data to attached device
	Off	No data is being transmitted or received

UPort 1400/1600

There are five LEDs per port for indicating the status of the ports. The LEDs are listed under P1, P2, P3, etc.

LED Name	LED Color	LED Function
Active	Green	Power is on
	Off	Power is off, or power error condition exists
Tx/Rx	Orange	Port is receiving data from attached device
	Green	Port is transmitting data to attached device
	Off	No data is being transmitted or received

Adjustable Pull High/low Resistors for the RS-485 Port

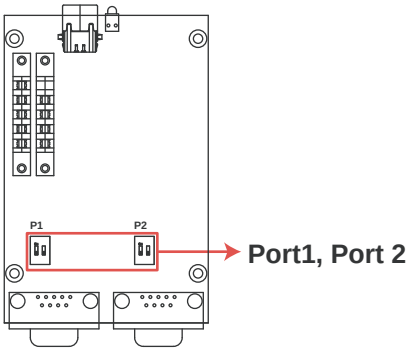
In some critical environments, you may need to add termination resistors to prevent the reflection of serial signals. When using termination resistors, it is important to set the pull high/low resistors correctly so that the electrical signal is not corrupted. The UPort uses DIP switches to set the pull high/low resistor values for each serial port.

To set the pull high/low resistors to 150 KΩ, make sure both of the assigned DIP switches are in the OFF position.

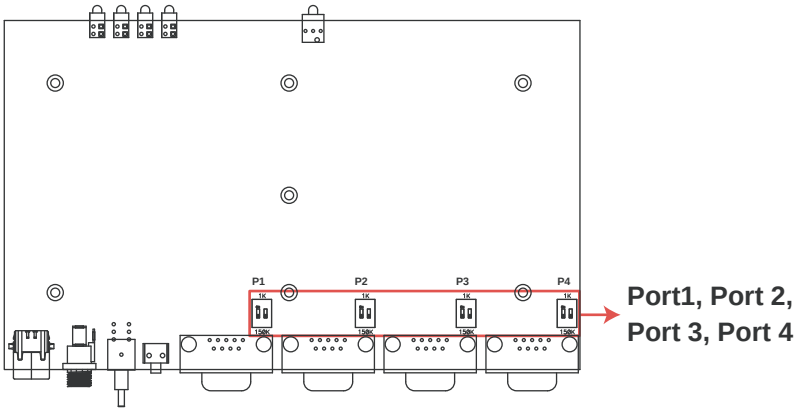
To set the pull high/low resistors to 1 KΩ, make sure both of the assigned DIP switches are in the ON position. This is the default setting.

SW	1	2	3
	Pull High	Pull Low	Terminator
ON	1 KΩ	1 KΩ	120 Ω
OFF	150 KΩ	150 KΩ	Disable

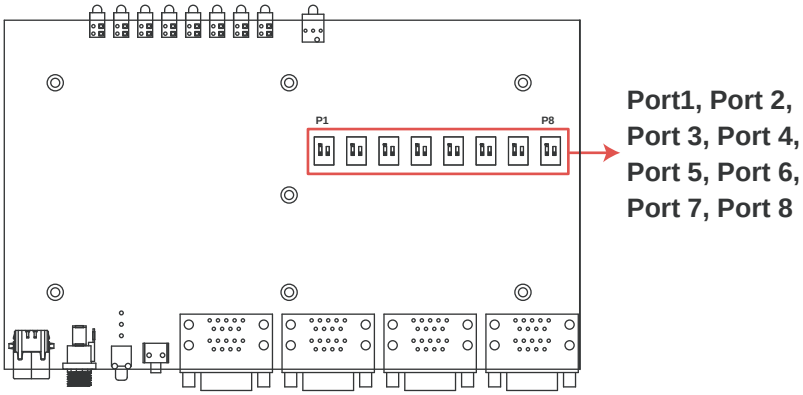
UPort 1200 DIP Switches



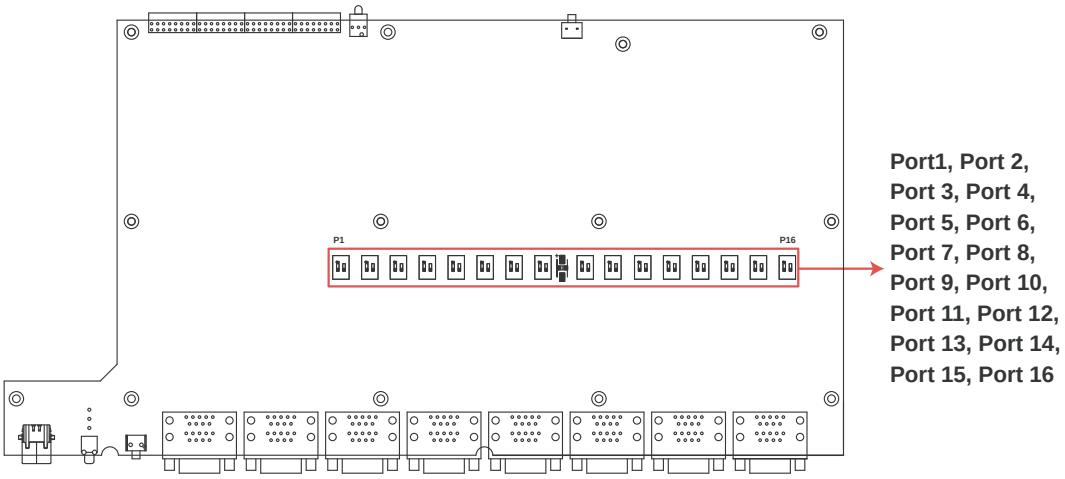
UPort 1400 DIP Switches



UPort 1600-8 DIP Switches



UPort 1600-16 DIP Switches



Plugging in the UPort

When you plug the UPort into your computer's USB port, your computer's operating system will detect the new hardware automatically.

What happens next depends on whether or not the UPort driver has been certified by Microsoft.

NOTE The operating system will automatically detect the UPort when you plug it into one of your computer's USB ports. f you have installed the latest UPort driver, the UPort and the UPort's serial port will be installed automatically. If the UPort and the serial ports are not installed automatically, follow the instructions below.

Case 1: The UPort Driver is Certified

If the UPort driver that you installed has been certified by Microsoft, the UPort and the UPort's serial ports will be installed automatically when you plug the UPort into your computer's USB port.

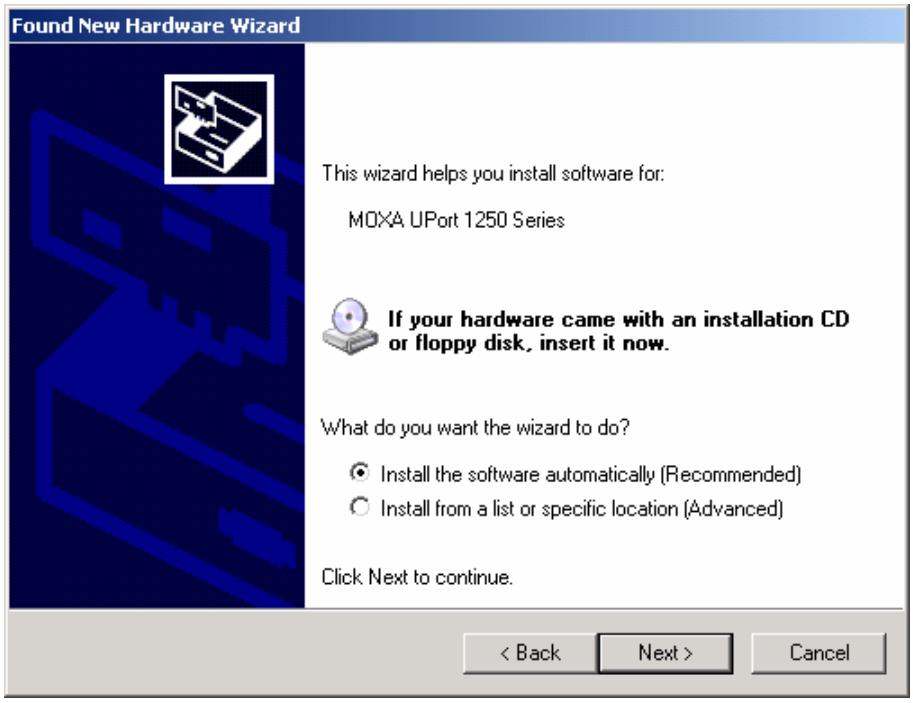
Case 2: The UPort Driver is NOT Certified

If the UPort driver that you installed has not been certified by Microsoft, then plugging the driver into your computer's USB port will activate the UPort installation program. The first part of the installation procedure installs the software for the UPort itself (the second part of the procedure installs the serial ports).

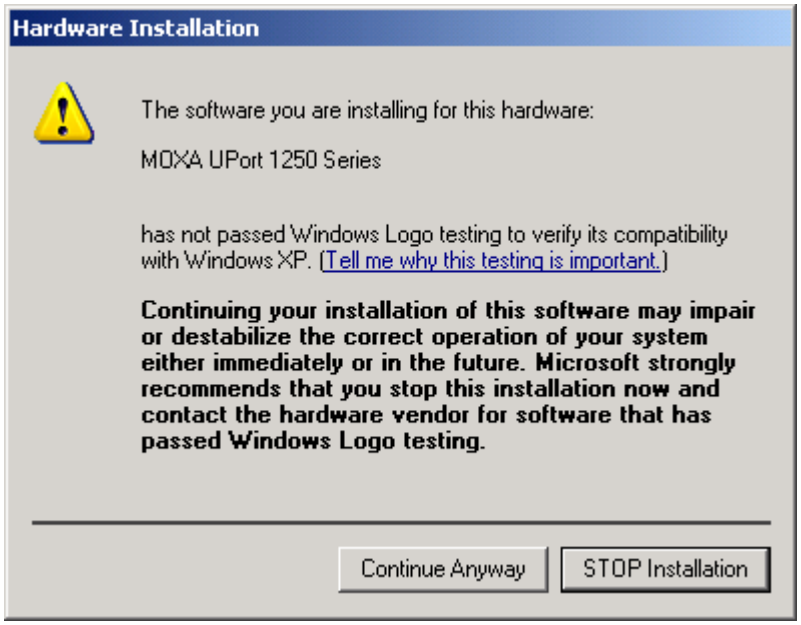
1. Select **No, not at this time**. Click **Next** to start the installation.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

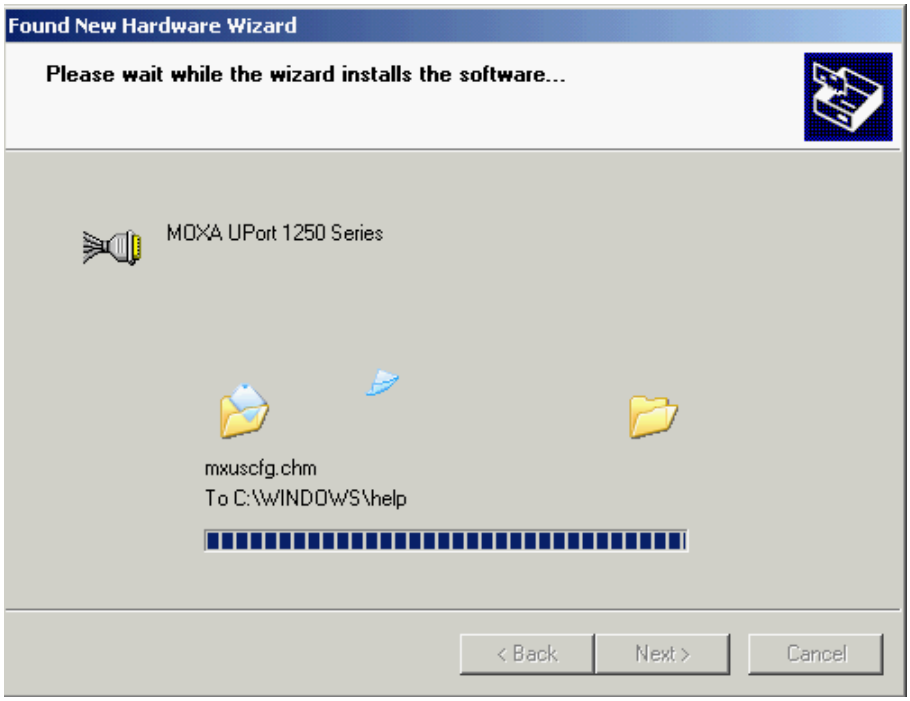
2. Select Install **the software automatically (Recommended)**, and then click **Next** to continue.


Found New Hardware Wizard
This wizard helps you install software for:
MOXA UPort 1250 Series
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

3. Wait while the installation wizard searches for the correct drivers. The next window that opens cautions you that although this software has not passed Windows logo testing, this driver has already been tested and shown that it can support the Windows OS. Click **Continue Anyway** to proceed.


Hardware Installation
The software you are installing for this hardware:
MOXA UPort 1250 Series
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

4. Wait while the software is installed.



5. The next window shows the model name of the board, and indicates that Windows has finished installing the software. Click **Finish** to proceed with the rest of the installation procedure.

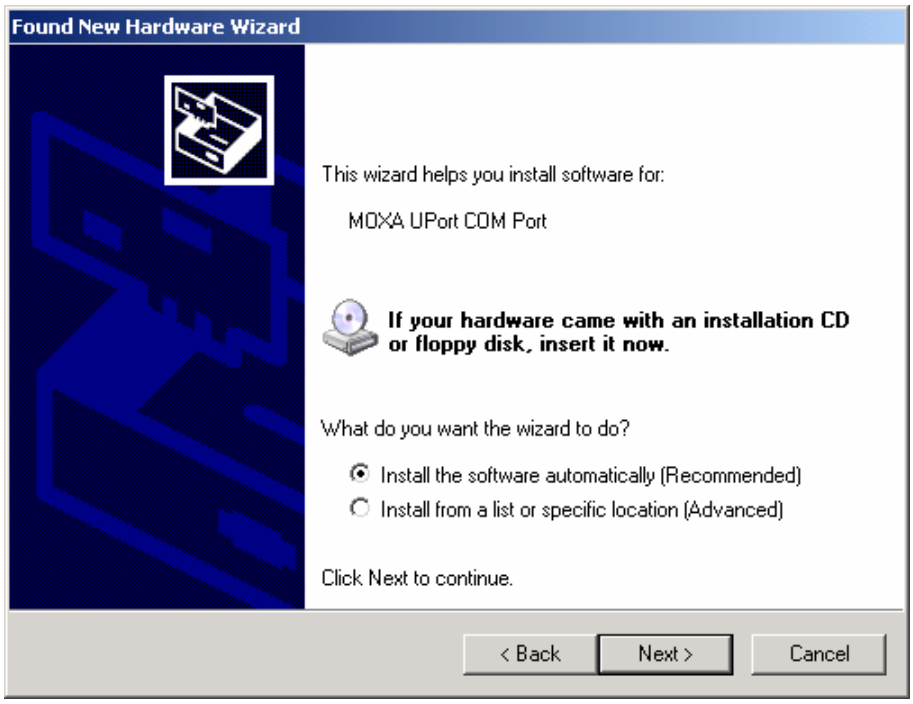
Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
MOXA UPort 1250 Series
Click Finish to close the wizard.
< Back
Finish
Cancel

The second part of the procedure installs the UPort's serial ports.

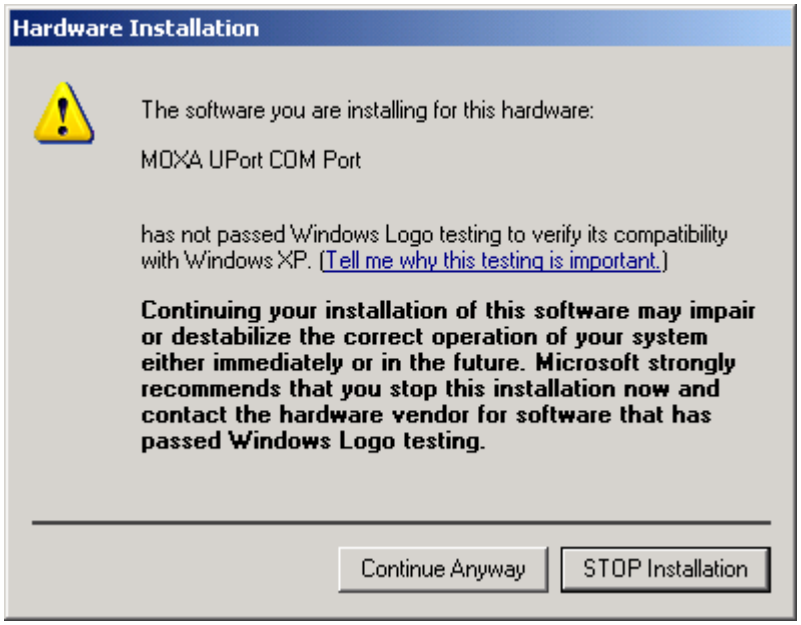
1. The **Found Next Hardware Wizard** window will open to help you Moxa Port 0. This window will offer to connect to the Windows update site to search for a driver. Select **No, not at this time** and then click **Next** to continue.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

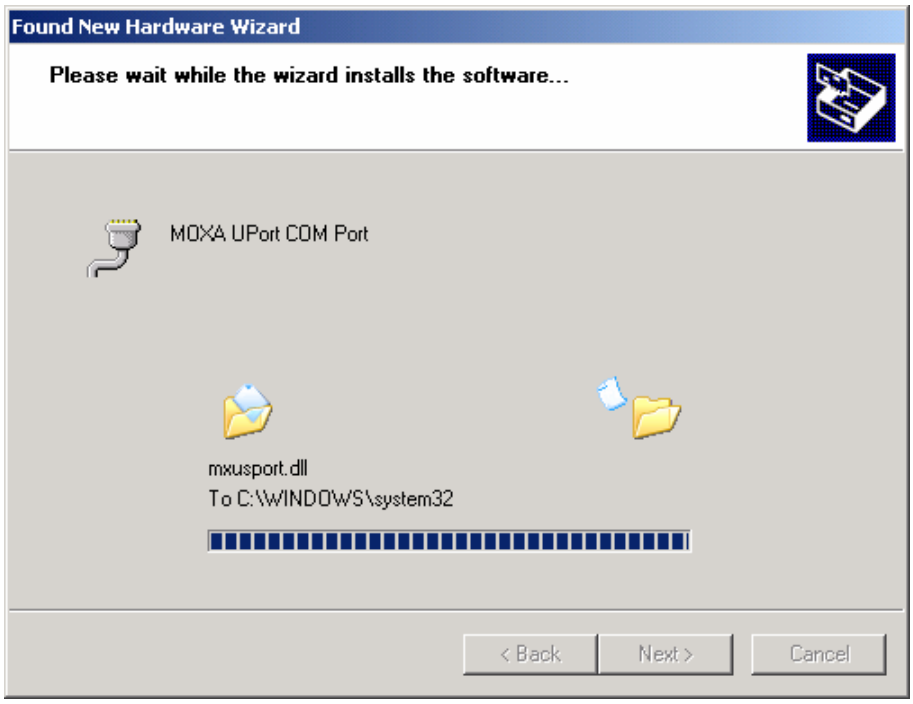
2. Select Install **the software automatically (Recommended)**, and then click **Next** to continue.


Found New Hardware Wizard
This wizard helps you install software for:
MOXA UPort COM Port
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

3. Wait while the installation wizard searches for the correct drivers. The next window that opens cautions you that although this software has not passed Windows logo testing, this driver has already been tested and shown that it can support Windows OS. Click **Continue Anyway** to proceed.


Hardware Installation
The software you are installing for this hardware:
MOXA UPort COM Port
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

4. Wait while the driver software is installed.



5. After all files have been copied to the system, the **Completing the Found New Hardware Wizard** window will open to indicate that it has finished installing Port 0. Click **Finish** to proceed with the rest of the installation.

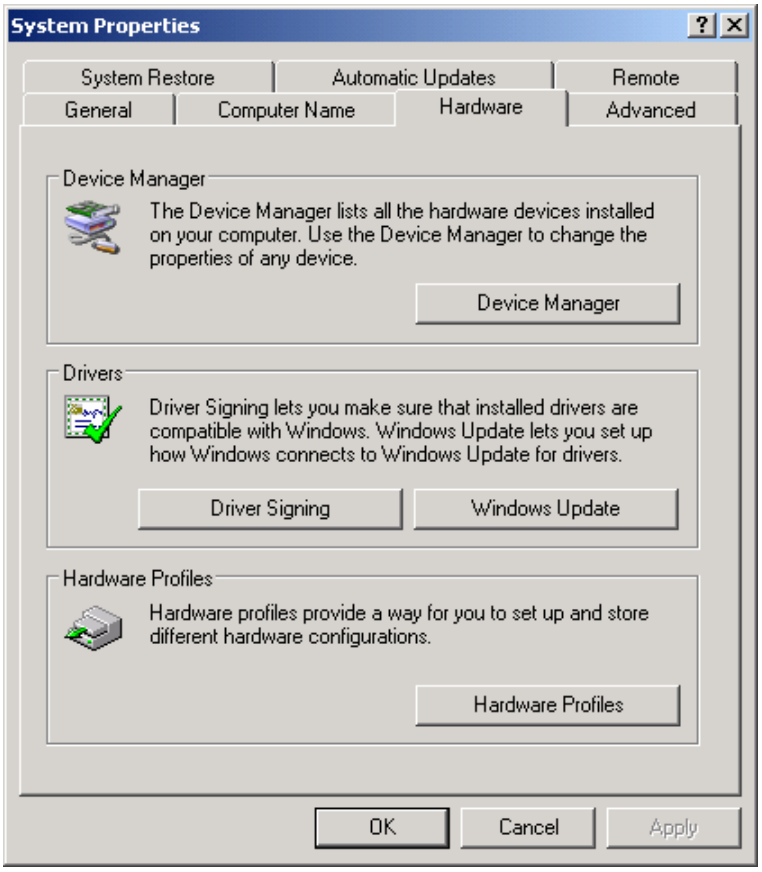
Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
MOXA UPort COM Port
Click Finish to close the wizard.
< Back
Finish
Cancel

6. Repeat Step 1 through Step 5 for each of the remaining ports (1 port for the UPort 1200, 3 ports for the UPort 1400, 7 ports for the UPort 1600-8, and 15 ports for the UPort 1600-16.
7. The **Found New Hardware** balloon will reappear to inform you that the hardware was installed successfully.

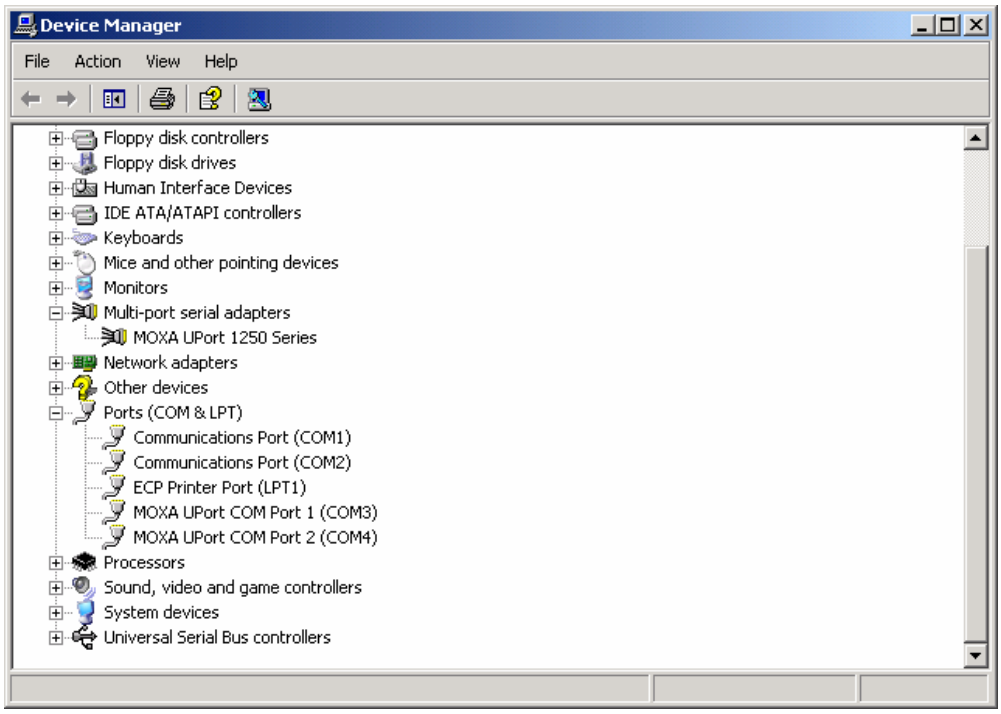
Configuring the Ports

After the driver has been installed, use Windows' **Device Manager** to configure the UPort serial ports.

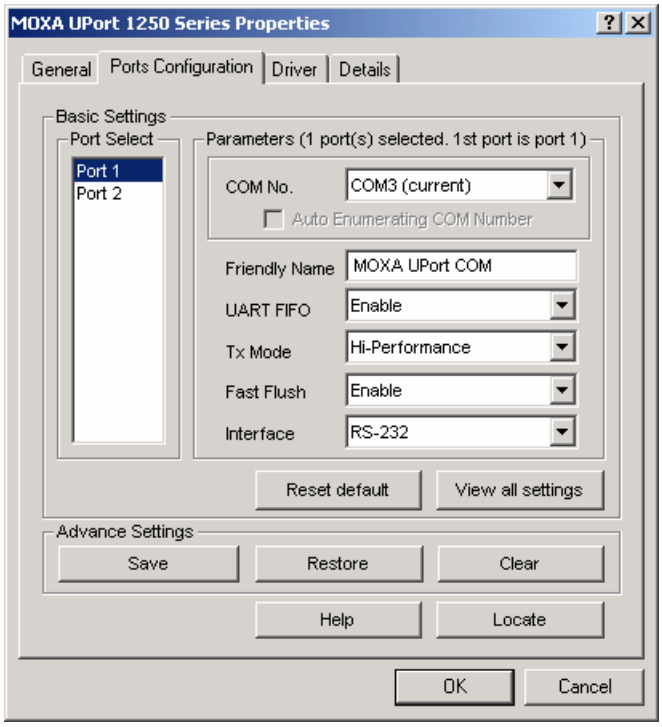
1. With the **System Properties** window open, click on the **Hardware** tab, and then click on **Device Manager**.


System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

2. Expand the **Multi-port serial adapters** tab, right click **MOXA UPort 1250 Series**, and then click **Properties** to open the UPort's configuration panel.



The **Ports Configuration** page settings are described below.



Port Settings

Auto Enumerating COM Number

If the "Auto Enumerating COM Number" checkbox is checked, COM numbers will be assigned automatically and in sequence to the ports. E.g., COM3 to Port 1, COM4 to Port 2, etc.

If you do not enable this check box, only the first COM Number will be changed to new COM number list in the drop-down list box. Enable this function if you want to configure several ports with sequential numbers.

Friendly Name

Setting	Factory Default	Necessity
1 to 20 characters (E.g., UPort 1610-8)	Moxa UPort COM	Optional

Use the "Friendly name" to allow easy identification of the serial devices that are connected to the UPort's serial ports.

UART FIFO

Setting	Factory Default	Necessity
Enable/Disable	Enable	Required

The UPort's serial ports provide a 128-byte FIFO both in the Tx and Rx directions. Disable UART FIFO setting when your serial device does not have a FIFO to prevent data loss during communication. For a slow serial device, we recommend you disable FIFO to improve the latency. If you want to use XON/XOFF flow control, we recommend disabling UART FIFO.

Tx Mode

Setting	Factory Default	Necessity
Hi-Performance, Classical	Hi-Performance	Required

To improve the write performance, you can select Hi-Performance mode. Under classical mode, the driver will not notify the user's program that Tx is completed until all Tx data has been sent out from the UPort; this mode will cause lower throughput. If you want to ensure that all data is sent out before further processing, classical mode is recommended. Classical mode is the same as the COM Port behavior: The WriteFile() call will only finish when all queued data are sent out.

Fast Flush

Setting	Factory Default	Necessity
Enable/Disable	Enable	Required

1. For some applications, the user's program will use the Win32 ***PurgeComm()*** function before it reads or writes data. With our design, after the program uses this ***PurgeComm()*** function, the UPort driver will keep querying the UPort's firmware several times to make sure that no data is queued in the UPort's firmware buffer, rather than just flushing the local buffer. This kind of design is used because of some special considerations. However, it might take more time (about several hundred milliseconds) than a native COM1, because it needs to work over Ethernet. This is why the native COM ports on the motherboard can work fast with this function call, but the UPort requires much more time.

2. To begin with, make sure there are some ***PurgeComm()*** functions being used in your application program. In this kind of situation, you might find that your UPort exhibits a much poorer operation performance than when using the native COM1 port. Once you have enabled the ***Fast Flush*** function, you can check to see if there has been an improvement in performance.
3. By default, the optional ***Fast Flush*** function is enabled, which allows the UPort driver to work faster when using the ***PurgeComm()*** function.
4. Win32 function ***PurgeComm()*** with PURGE_TXCLEAR will clear all queued Tx data. But for some applications, it will call this function for each transaction and result in low throughput. To avoid this, you can enable this function. The driver will only clear the data queued in the local buffer; it will not send firmware through the USB port to clear the data queued in the firmware buffer.

Interface

UPort 1410, 1610-8, 1610-16

Setting	Factory Default	Necessity
RS-232	RS-232	Required

UPort 1250, 1250I, 1450, 1450I, 1650-8, 1650-16

Setting	Factory Default	Necessity
RS-232, RS-422, 4-wire RS-485, 2-wire RS-485	RS-232	Required

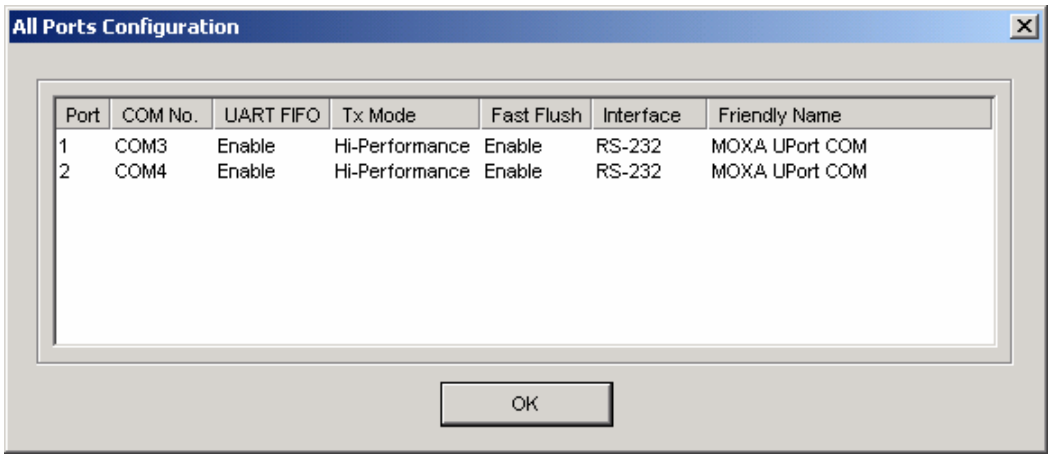
Reset default

If you click the **Reset default** button, all the settings will return to Factory default settings:

COM Number: <Assign available COM number automatically>
Tx Mode: Hi-Performance
UART FIFO: Enable
Fast Flush: Enable
Interface: RS-232

View All Settings

You can preview all ports settings with this function.



Advanced Settings

COM Preserver – Driver Setting Management

UPort provides one special function to help you manage the UPort settings. In the general case, you need write down all the settings including COM number to prevent them from being lost. In some applications, to clone multiple systems you also need to worry about how to clone the COM Port settings. Using the UPort ***COM Preserver*** function, you just need to save all the settings into UPort device directly– just like a USB Mass Storage device. You do not need to record it using additional paper or disk. If your host crashes, you can just install the driver into new host, plug the original UPort and click the **Restore** button to restore all settings back very quickly.

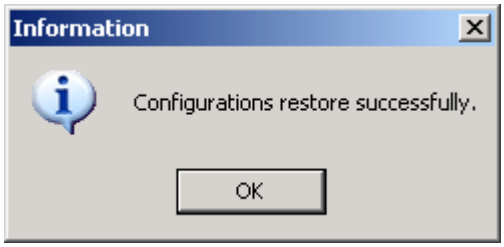
NOTE If you want to use these settings in another PC, be sure the PC has a free COM port available. Otherwise, the new settings will copy over the settings of a COM port that is already in use.

Save

Save all settings to the UPort.

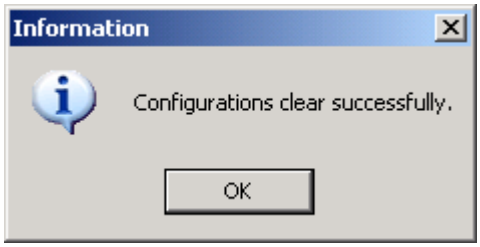
Restore

Read all UPort settings as new settings. Click **OK** to activate.



Clear

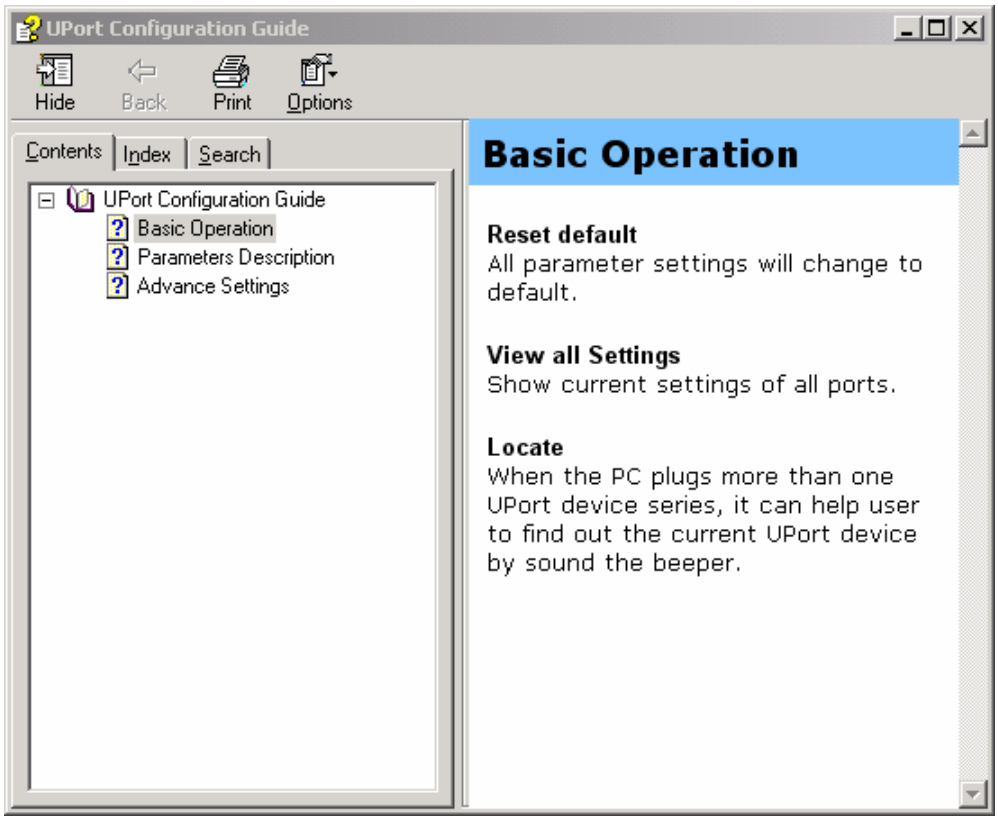
Clears the UPort settings stored in the UPort. This operation is similar to resetting all settings to their factory defaults.



The following settings will be saved to the UPort if you select **Save**:
COM number, Friendly Name, Transmission Mode, FIFO settings, Fast Flush settings, and Interface.

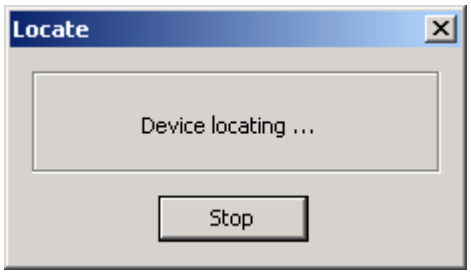
Help

Clicking Help will open the online help for the UPort.



Locate

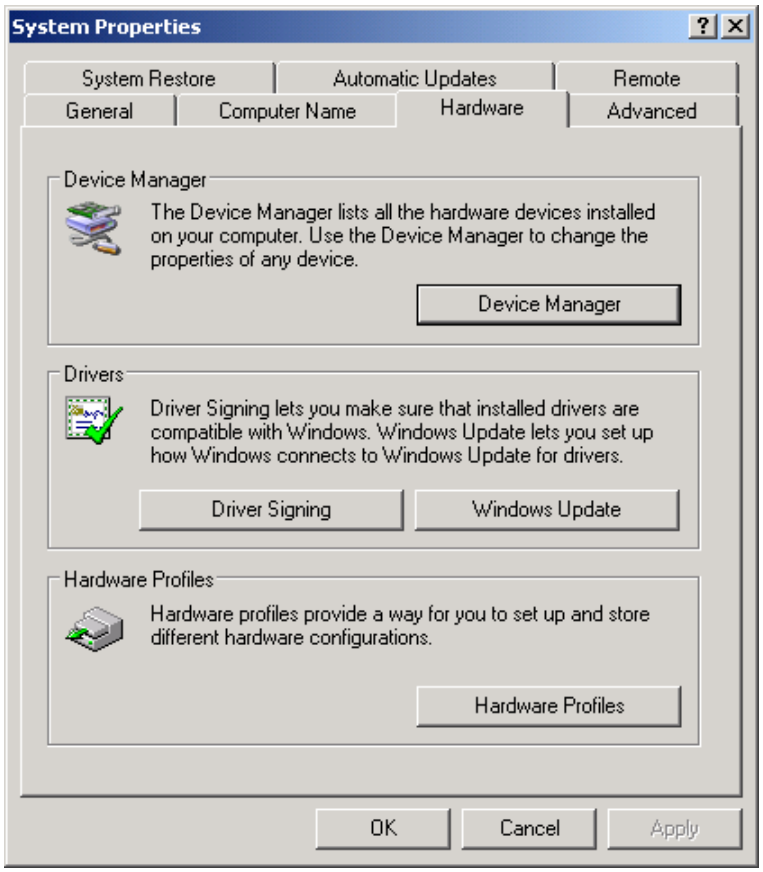
Use this function to identify the UPort's location, especially when two or more UPorts are installed in the same computer. This function will ask the UPort to flash the ready LED and turn on the Buzzer until you stop it.



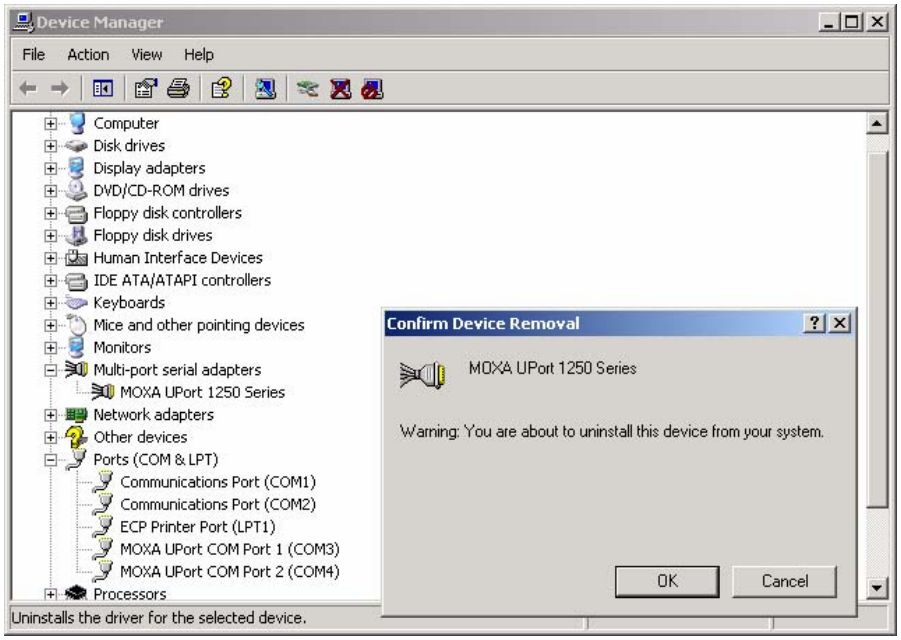
Uninstalling the UPort

If you want to remove the UPort, you just need to remove the device from **Device Manager**. The UPort driver will still stay alive enabling other UPort devices to keep working.

1. To uninstall the UPort, click **Start → Settings → Control Panel → System**, select the **Hardware** tab, and then click **Device Manager**.


System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

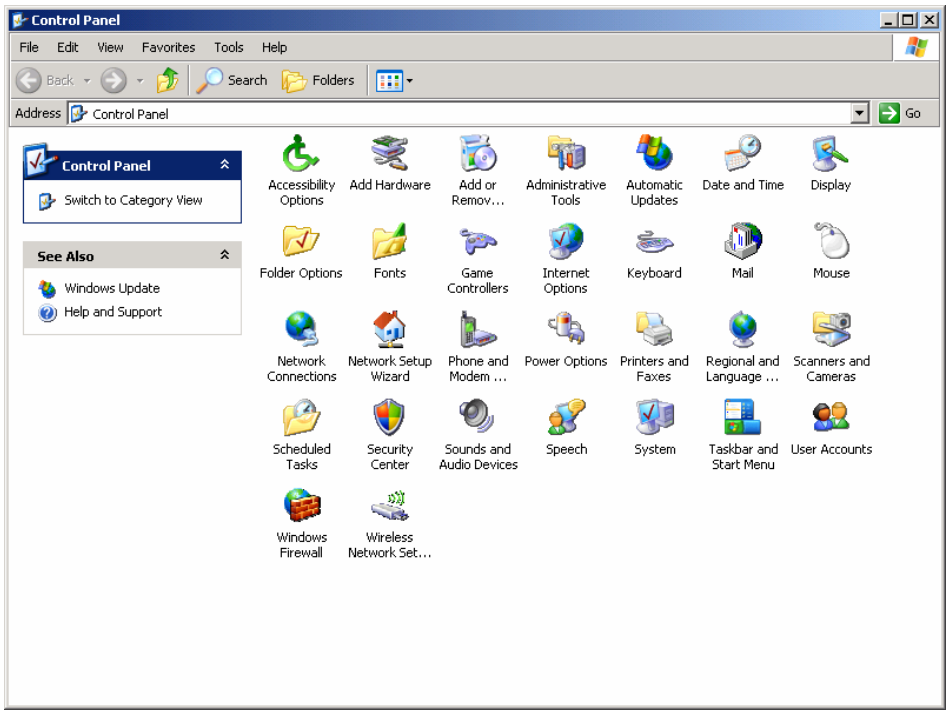
2. Expand the **Multi-port serial adapters** tab, right click **MOXA UPort 1250 Series**, and then click **Uninstall** to uninstall this UPort. A window will pop up to confirm that you want to remove this UPort.



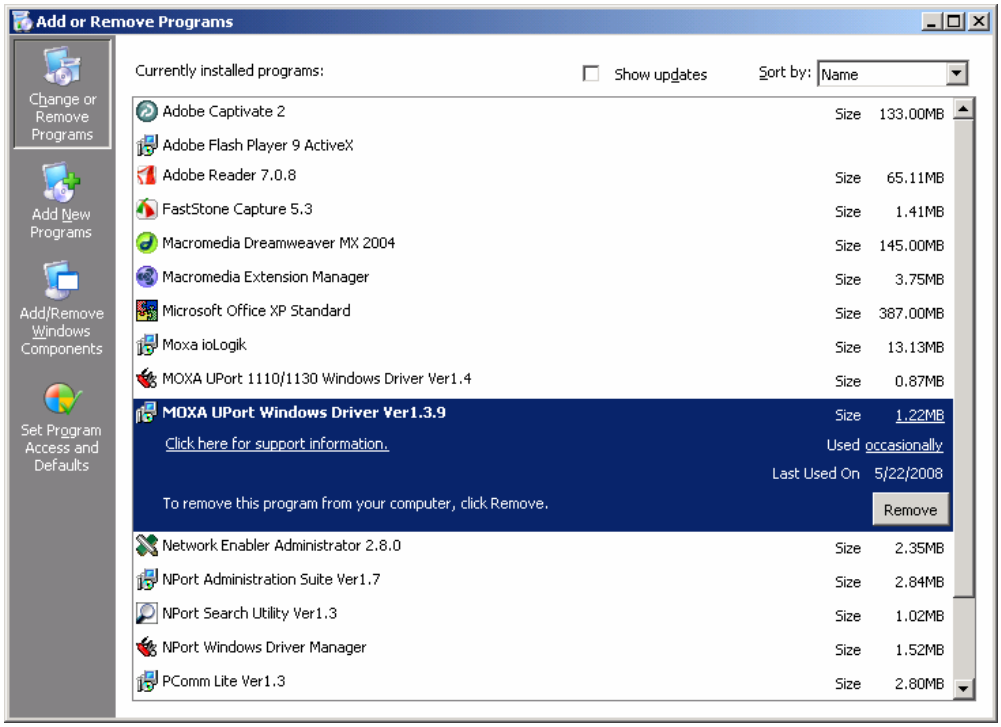
3. Click **OK** to continue uninstalling the UPort. The UPort will be removed from the list of **Multi-port serial adapters**.

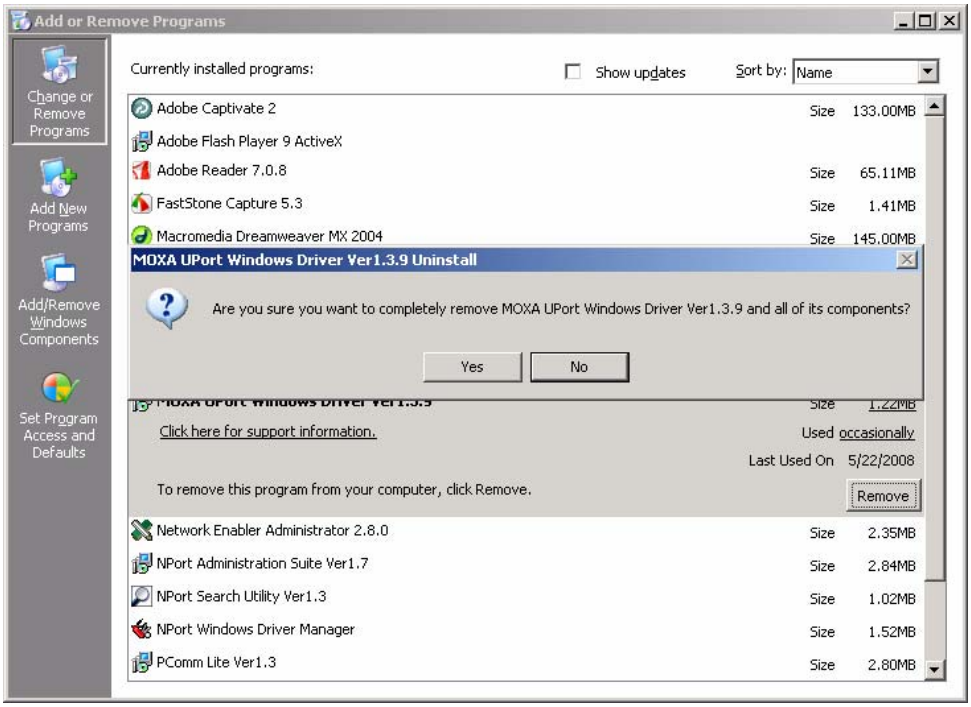
Uninstalling the Driver

1. To uninstall the driver, open the Control window, and click **Add/Remove Programs**.

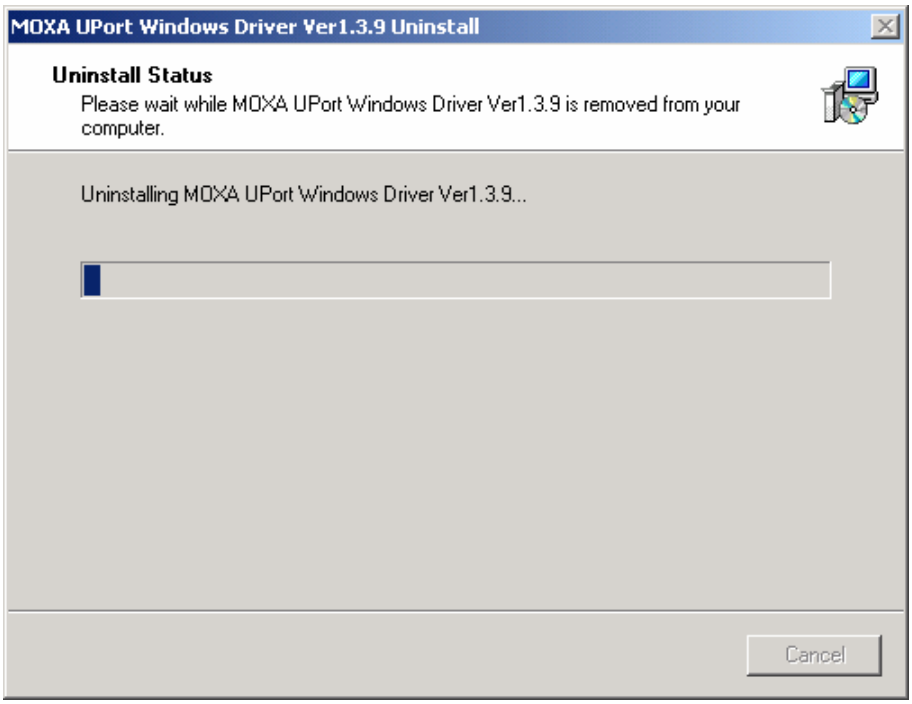


2. Select Moxa **UPort Windows Driver Ver1.0**. Click the **Remove** button.

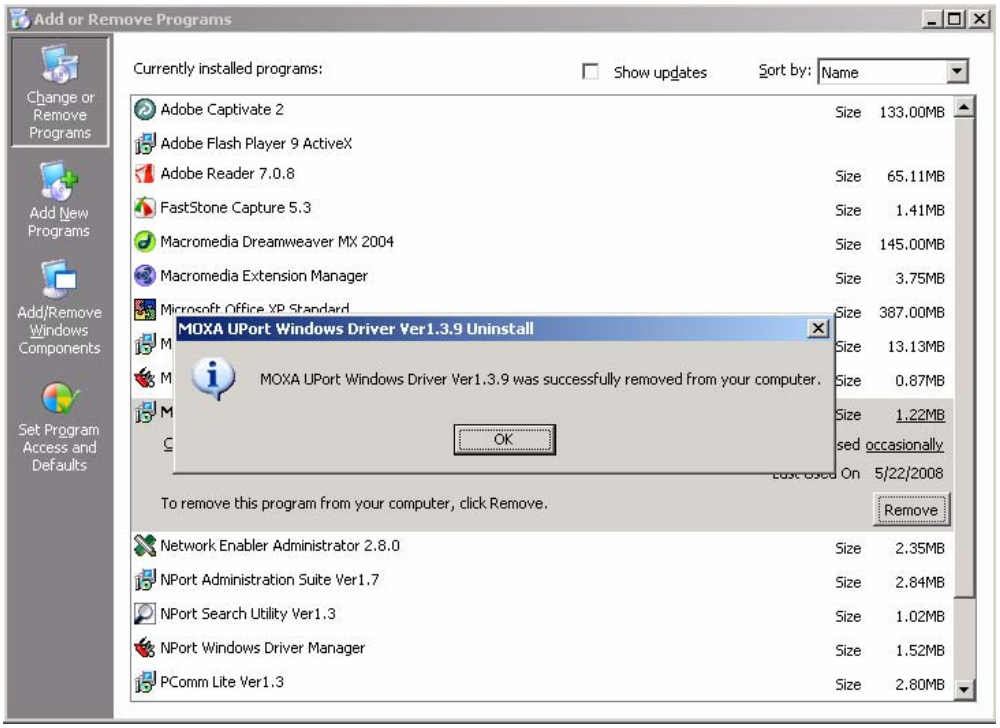

Add or Remove Programs
Change or Remove Programs
Add New Programs
Add/Remove Windows Components
Set Program Access and Defaults
Currently installed programs:
Show updates
Sort by: Name
Adobe Captivate 2 Size 133.00MB
Adobe Flash Player 9 ActiveX
Adobe Reader 7.0.8 Size 65.11MB
FastStone Capture 5.3 Size 1.41MB
Macromedia Dreamweaver MX 2004 Size 145.00MB
Macromedia Extension Manager Size 3.75MB
Microsoft Office XP Standard Size 387.00MB
Moxa ioLogik Size 13.13MB
MOXA UPort 1110/1130 Windows Driver Ver1.4 Size 0.87MB
MOXA UPort Windows Driver Ver1.3.9 Size 1.22MB
Click here for support information.
Used occasionally
Last Used On 5/22/2008
To remove this program from your computer, click Remove.
Remove
Network Enabler Administrator 2.8.0 Size 2.35MB
NPort Administration Suite Ver1.7 Size 2.84MB
NPort Search Utility Ver1.3 Size 1.02MB
NPort Windows Driver Manager Size 1.52MB
PComm Lite Ver1.3 Size 2.80MB


Add or Remove Programs
Change or Remove Programs
Add New Programs
Add/Remove Windows Components
Set Program Access and Defaults
Currently installed programs:
Show updates
Sort by: Name
Adobe Captivate 2 Size 133.00MB
Adobe Flash Player 9 ActiveX
Adobe Reader 7.0.8 Size 65.11MB
FastStone Capture 5.3 Size 1.41MB
Macromedia Dreamweaver MX 2004 Size 145.00MB
MOXA UPort Windows Driver Ver1.3.9 Uninstall
Are you sure you want to completely remove MOXA UPort Windows Driver Ver1.3.9 and all of its components?
Yes
No
Size 1.22MB
Click here for support information.
Used occasionally
Last Used On 5/22/2008
To remove this program from your computer, click Remove.
Remove
Network Enabler Administrator 2.8.0 Size 2.35MB
NPort Administration Suite Ver1.7 Size 2.84MB
NPort Search Utility Ver1.3 Size 1.02MB
NPort Windows Driver Manager Size 1.52MB
PComm Lite Ver1.3 Size 2.80MB

3. Wait while the driver software is uninstalled.


MOXA UPort Windows Driver Ver1.3.9 Uninstall
Uninstall Status
Please wait while MOXA UPort Windows Driver Ver1.3.9 is removed from your computer.
Uninstalling MOXA UPort Windows Driver Ver1.3.9...
Cancel

4. Click **OK** to proceed with the un-installation procedure.


Add or Remove Programs
Change or Remove Programs
Add New Programs
Add/Remove Windows Components
Set Program Access and Defaults
Currently installed programs:
Show updates
Sort by: Name
Adobe Captivate 2 Size 133.00MB
Adobe Flash Player 9 ActiveX
Adobe Reader 7.0.8 Size 65.11MB
FastStone Capture 5.3 Size 1.41MB
Macromedia Dreamweaver MX 2004 Size 145.00MB
Macromedia Extension Manager Size 3.75MB
Size 387.00MB
Size 13.13MB
Size 0.87MB
Size 1.22MB
sed occasionally
Last Used On 5/22/2008
To remove this program from your computer, click Remove.
Remove
MOXA UPort Windows Driver Ver1.3.9 Uninstall
MOXA UPort Windows Driver Ver1.3.9 was successfully removed from your computer.
OK
Network Enabler Administrator 2.8.0 Size 2.35MB
NPort Administration Suite Ver1.7 Size 2.84MB
NPort Search Utility Ver1.3 Size 1.02MB
NPort Windows Driver Manager Size 1.52MB
PComm Lite Ver1.3 Size 2.80MB

Installing the Windows CE Driver

In this section, we describe two installation procedures for installing the Windows CE 5.0 driver: CAB file and installation package. The Win CE 5.0 driver for the Moxa UPort USB-to-Serial products supports the following products:

UPort 1250	2 port RS-232/422/485 USB-to-serial converter.
UPort 1250I	2 port RS-232/422/485 USB-to-serial converter with 2KV isolation.
UPort 1410	4 port RS-232 USB-to-serial converter.
UPort 1450	4 port RS-232/422/485 USB-to-serial converter.
UPort 1450I	4 port RS-232/422/485 USB-to-serial converter with 2 KV isolation.
UPort 1610-16	16 port RS-232 USB-to-serial converter.
UPort 1610-8	8 port RS-232 USB-to-serial converter.
UPort 1650-16	16 port RS-232/422/485 USB-to-serial converter.
UPort 1650-8	8 port RS-232/422/485 USB-to-serial converter.

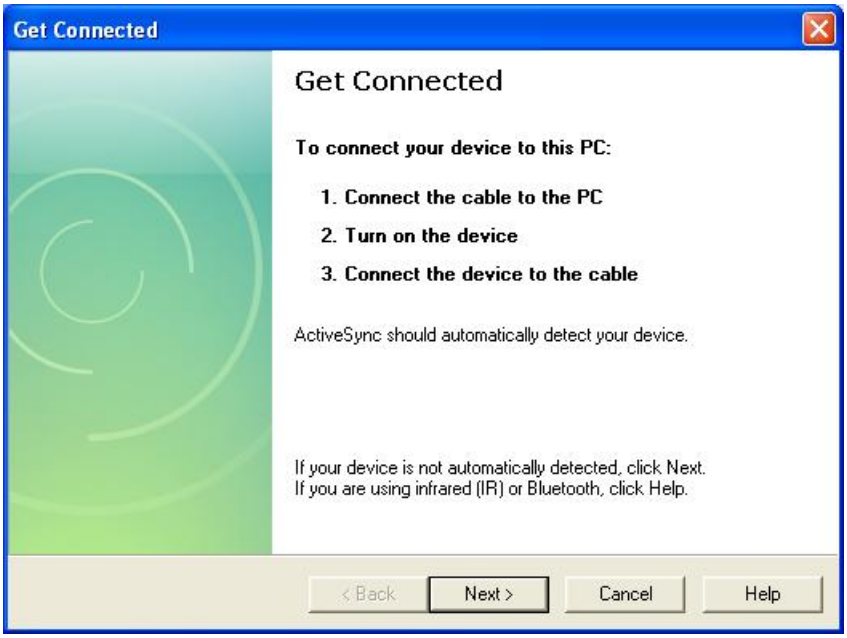
Installation with a CAB File

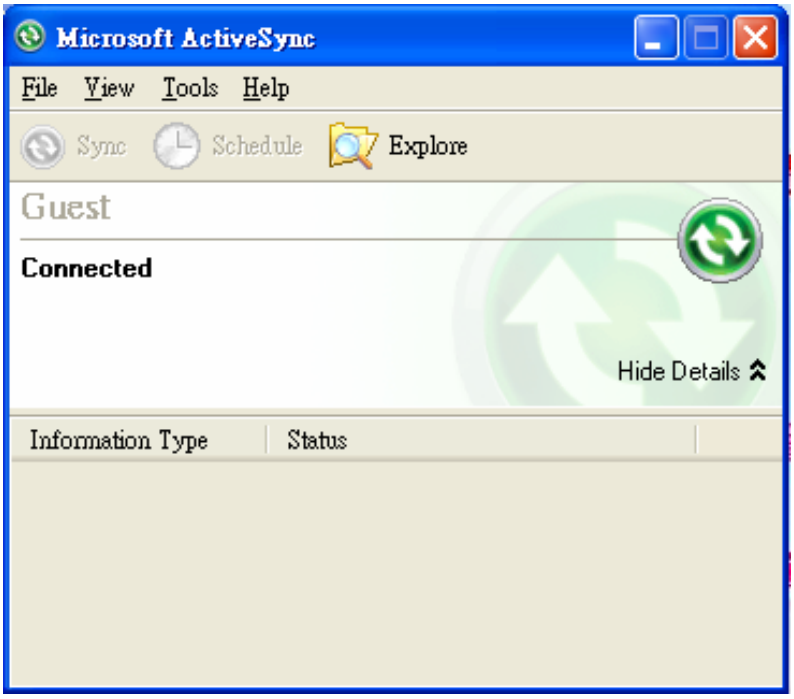
Follow these instructions to install the UPort 1200, 1400, 1600 Series WinCE 5.0 driver.

Step 1: If you do not have ActiveSync, install Microsoft ActiveSync in the source PC. Before running ActiveSync, use an RS-232 null modem cable to connect the WinCE Device (CEPC) and the PC.

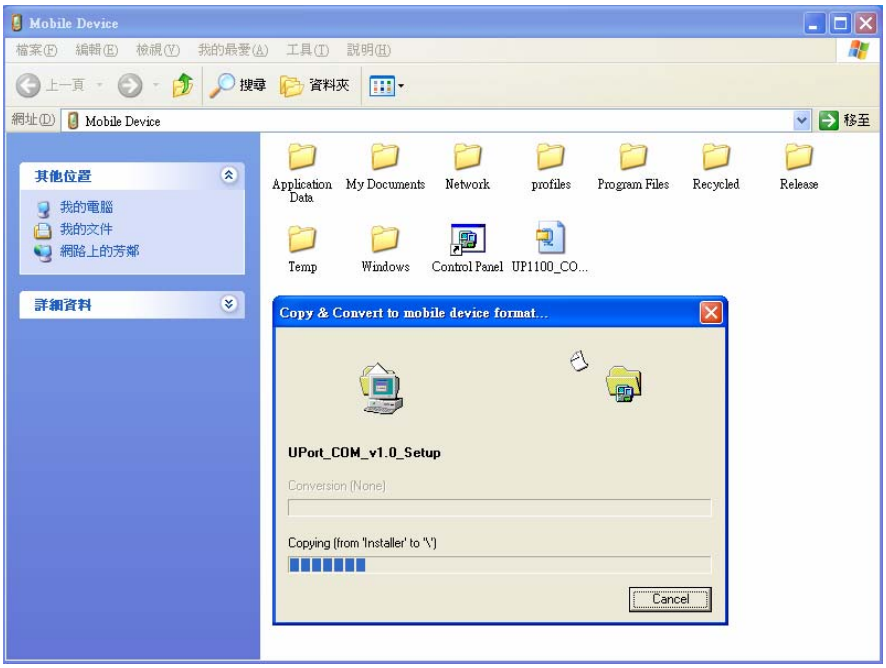
Step 2: Execute the command **repllog** from the WinCE device's command prompt. When the **New Partnership** window appears, select **No** and then click **Next** to connect through ActiveSync.

New Partnership
Set Up a Partnership
Before you can synchronize information between your mobile device and this computer, you must set up a partnership between them.
Would you like to set up a partnership?
Yes
Set up a partnership so that I can synchronize information between my device and this computer.
No
I don't want to synchronize information. Set up my device as a guest so that I can copy or move information between my device and this computer.
< Back
Next >
Cancel
Help


Get Connected
Get Connected
To connect your device to this PC:
1. Connect the cable to the PC
2. Turn on the device
3. Connect the device to the cable
ActiveSync should automatically detect your device.
If your device is not automatically detected, click Next.
If you are using infrared (IR) or Bluetooth, click Help.
< Back
Next >
Cancel
Help


Microsoft ActiveSync
File View Tools Help
Sync
Schedule
Explore
Guest
Connected
Hide Details
Information Type
Status

Step 3: Click on the "Explore" button in the ActiveSync window, and then copy the UPort_COM_v1.0_Setup.cab file to the "Mobile/Target Device".



Step 4: Double click on the CAB file (UPort_COM_v1.0_Setup) to start installing the UPort 1200/1400/1600 Series WinCE 5.0 driver. After installing the Driver, plug the UPort 1200/1400/1600 Series USB Serial device into the WinCE device's USB port. The driver will be loaded automatically, after which the UPort 1200/1400/1600 will be ready to use.

Removing the Moxa Win CE 5.0 Driver

Step 1: Enter **Control Panel → Remove Programs**.

Step 2: Select **MOXA UPort_COM v1.0** or **MOXA UPort_MXU v1.0**.

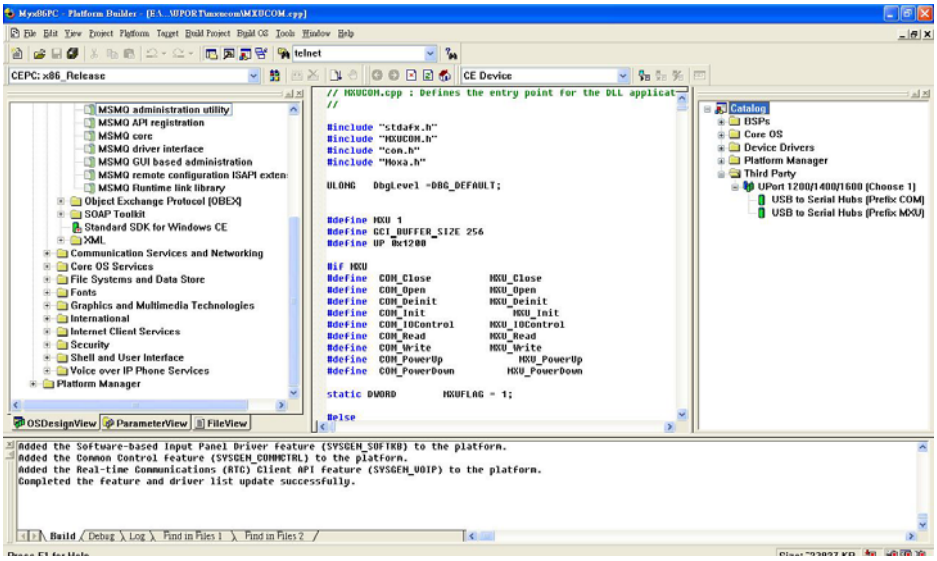
Step 3: Click **Remove**.

Installation with an Installation Package

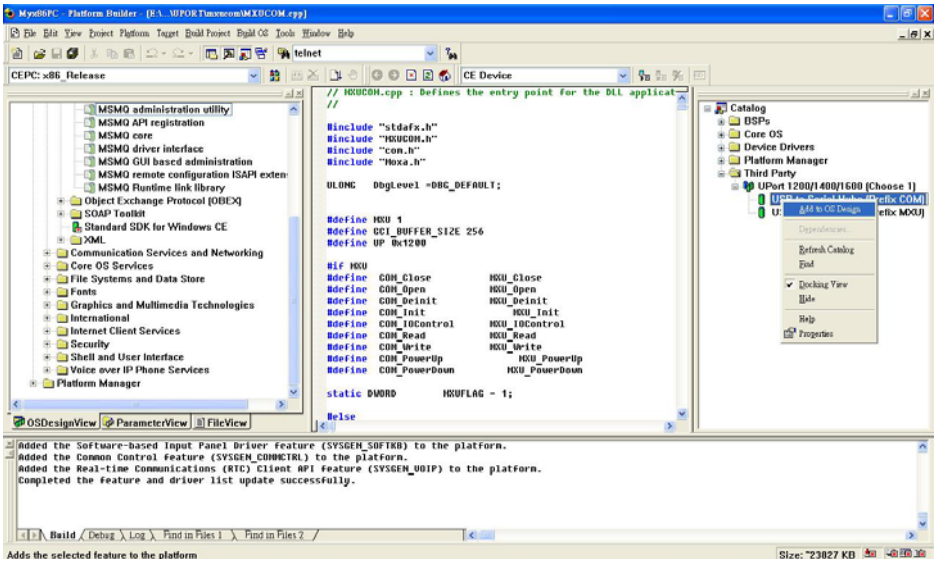
In this section, we describe how to install the Moxa Win CE 5.0 Driver on a Windows CE 5.0 operating system.

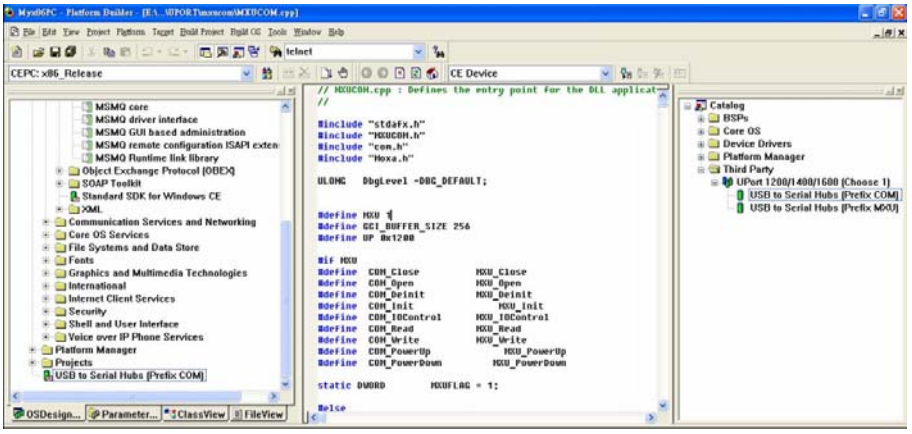
Step 1: Obtain a copy of the UPort 1200/1400/1600 Series WinCE 5.0 driver package and extract it to your computer. Double click the installation package and it will automatically copy the UPort folder to "\WINCE500\PLATFORM\" (e.g., C:\WINCE500\PLATFORM\UPort) and import the UPort 1200/1400/1600 WinCE 5.0 driver into the "Catalog."

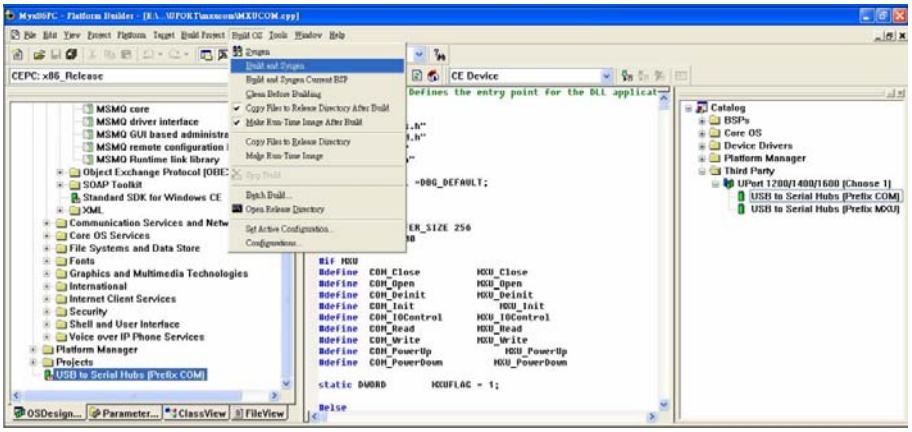
Step 2: Open your workspace in Platform Builder, and then open "Manage Catalog Items" (**View → Catalog**). You will find the UPort 1200/1400/1600 WinCE 5.0 driver in the "Third Party" folder.



Step 3: Right-click on the driver "USB to Serial Adaptors (Prefix COM)" or "USB to Serial Adaptors (Prefix MXU)" and then choose "Add to OS Design." After adding the driver, you will be able to find it in your workspace, after which you can start to build your OS and download it into a target.







Configuring Serial Parameters

Changing a COM number in the registry

1. From File View, navigate to **Projects → mxupce5 → Parameter files → mxupce5.reg**.
2. Add " "index"=dword:N " (N is the COM number you preferred.) in [HKEY_LOCAL_MACHINE\Drivers\USB\ClientDrivers\MXU_PORT].

NOTE: If you want the host to detect available COM port numbers automatically, you do not need to include the index command in the code.

3. For example, install a UPort 1250 as COM5 in a WinCE device:
   [HKEY_LOCAL_MACHINE\Drivers\USB\ClientDrivers\MXU_PORT]
   "Prefix"= "COM"
   "DLL"= "MXUCOM.DLL"
   "Tsp"= "Unimodem.dll"
   "DevConfig"=hex: 10,00, 00,00, 05,00,00,00, 10,01,00,00, 00,4B,00,00,00,00, 08, 00, 00, 00,00,00,00
   "DeviceType"=dword:0
   "Interface"=dword: 0
   "index"=dword:5 // COM5 for UPort1250

Changing the interface in the registry

1. From File View, navigate to **Projects → mxupce5 → Parameter files → mxupce5.reg**.
2. Modify " "Interface"=dword:N " (N=0->RS-232, N=1→RS-485 2W,N=2→RS-422,N=3→RS-485 4W) in [HKEY_LOCAL_MACHINE\Drivers\USB\ClientDrivers\MXU_PORT\PORTN(N: port number of UPort)].
3. For example, use the following code to install port 1 of the UPort 1250 to use the RS-422 interface on a WinCE device:
   [HKEY_LOCAL_MACHINE\Drivers\USB\ClientDrivers\MXU_PORT\PORT0]
   "Interface"=dword:2 // UPort 1150 at RS422 mode
   "FIFO"=dword:1

Removing the Driver from a Target

1. In the "OSDesign_View", delete "USB to Serial Adaptors (Prefix XXX)".
2. Build your OS again and then download it to a target.

Installing the Linux Driver

Linux Kernel 2.6.x

The Linux driver provided with the UPort 1200/1400/1600 maps Linux host ttyMXUSBxx ports to UPort device ports. Once the mapping has been set up, Linux users and applications can connect to a device port as if it were a ttyMXUSBxx port. These drivers have been designed and tested for the majority of Linux distributions, including Linux kernel version 2.6.x. Please check Moxa's website (http://www.moxa.com) for the latest Linux kernel support.

The Linux drivers support the following models:

2-port UPort Models

- UPort 1250: 2-port RS-232/422/485 USB-to-serial converter
- UPort 1250I: 2-port RS-232/422/485 USB-to-serial converter with isolation

4-port UPort Models

- UPort 1410: 4-port RS-232 USB-to-serial converter
- UPort 1450: 4-port RS-232/422/485 USB-to-serial converter
- UPort 1450I: 4-port RS-232/422/485 USB-to-serial converter with isolation

8-port UPort Models

- UPort 1610-8: 8-port RS-232 USB-to-serial converter
- UPort 1650-8: 8-port RS-232/422/485 USB-to-serial converter

16-port UPort Models

- UPort 1610-16: 16-port RS-232 USB-to-serial converter
- UPort 1650-16: 16-port RS-232/422/485 USB-to-serial converter

Driver Files

First obtain the Linux driver file **driv_linux2.6_uport_v1.0_build_xxx.tgz** from the Document and Software CD, or from Moxa's website at http://www.moxa.com. Save the driver file to a specific directory, such as **/moxa**, and then execute the commands listed below. In this example, we use the Ver. 1.0 driver file name: **driv_linux2.6_uport_v1.0_build_xxx.tgz**.

 # cd /
 # mkdir moxa
 # cd /moxa
 # cp /dev/fd0/driv_linux2.6_uport_v1.0_build_xxx.tgz .
 # tar xvfz driv_linux2.6_uport_v1.0_build_xxx.tgz

or

 # cd /
 # mkdir moxa
 # cd /moxa
 # cp /mnt/cdrom/<driver dir>/driv_linux2.6_uport_v1.0_build_xxx.tgz .
 # tar xvfz driv_linux2.6_uport_v1.0_build_xxx.tgz

Module Driver Configuration

We cover the following topics in this section:

- Building the Moxa Driver
- Installing the Moxa Driver

Building the Moxa Driver

Before using the Moxa driver, you will need to compile all of the source code. This only needs to be done once, unless you modify the source code. If the source code is modified, then you will need to re-compile it.

To compile the source code, change to the **/moxa/mxuport** directory, and then run the **ls** (list) command to check if the **Makefile** file is in the directory. Next, run the "make" command as follows:

 # make

Installing the Moxa Driver

To install the Moxa driver, change to the **/moxa/mxuport** directory, and then run the **ls** (list) command to check if the **Makefile** file is in the directory. Next, run the "make install" command as follows:

 # make install

The driver files "mxuport.ko" and "mxusbserial.ko" will be compiled and copied to system directories.

Loading the Moxa Driver

To load the Moxa driver, change to the **/moxa/mxuport** directory, and then run the **ls** (list) command to check if the **Makefile** file is in the directory. Next, run the "modprobe mxuport" command as follows:

 # modprobe mxuport

After loading the Moxa driver, run the following command to check the Moxa serial port

 # ls /dev/ttyMXUSB*

NOTE: The serial COM port will be ttyMXUSB[nnn], nnn = 0~255.
For example,ttyMXUSB0,ttyMXUSB1 ...

Unloading the Moxa driver

To unload the Moxa driver, change to the **/moxa/mxuport** directory, and then run the **ls** (list) command to check if the **Makefile** file is in the directory. Next, run the two "rmmod" commands as follows:

 # rmmod mxuport
 # rmmod mxusbserial

Uninstalling the Moxa driver

To uninstall the Moxa driver, change to the **/moxa/mxuport** directory, and then run the **ls** (list) command to check if the **Makefile** file is in the directory. Next, run the two "make remove" command as follows:

 # make remove

Setting the Serial Parameters

After installing the Moxa Linux Driver, you will be able to configure parameters.

1. **Serial Interface:**
   The UPort 1250/1250I/1450/1450I/1650-8/1650-16 supports four interfaces: RS-232, RS-485 2W, RS-485 4W, RS-422. If you want to switch to a different interface, execute the setserial command to set the port's interface. The supported parameters are listed below.

Parameter Value	Interface
0x0	RS-232
0x1	RS-485 2W
0x2	RS-422
0x3	RS-485 4W

   Example:
   (i) The following command sets the interface of "/dev/ttyMXUSB0" to RS-422:
   # setserial /dev/ttyMXUSB0 port 0x2

   (ii) Use the following command to look up the serial settings of the current port:
   # setserial -g /dev/ttyMXUSB0

2. **Serial Baudrate:**
   spd_hi Use 57.6 KB when the application requests 38.4 KB.
   spd_vhi Use 115.2 KB when the application requests 38.4 KB.
   spd_shi Use 230 KB when the application requests 38.4 KB.
   spd_warp Use 460 KB when the application requests 38.4 KB.

spd_normal Use 38.4 KB when the application requests 38.4 KB.

Example:
 # setserial /dev/ttyMXUSB0 spd_vhi

Troubleshooting

1. **Compile error**
   Building a Moxa driver requires kernel header files. If you get a compile error, run **rpm -qa | grep kernel** to check if the kernel-source package is installed properly. If not, get the kernel-source irpm package and run **rpm -ivh <pacakge>** to install it. You also need to make sure the build tool is ready by including make/gcc/lib. See Linux related documents for more information.

2. **No such file or directory**
   This problem occurs when a device node is not generated automatically when loading the driver. It usually happens with previous kernel versions, such as versions 2.6.0 to 2.6.5. Therefore, just execute the make node script "upmknod" to generate the device node.

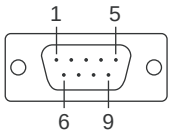
3

Pin Assignment

The UPort 1250/1250I have 2 RS-232/422/485 ports, the UPort 1410 has 4 RS-232 ports, the UPort 1450/1450I have 4 RS-232/422/485 ports, the UPort 1610-8/1610-16 have 8 or 16 RS-232 ports, and the UPort 1650-8/1650-16 has 8/16 RS-232/422/485 ports.

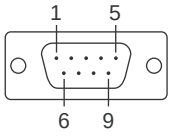
Serial Port Pinouts

DB9 Male RS-232 Port for UPort 1410/1610-8/1610-16



Pin	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

DB9 Male RS-232/422/485 Port for UPort 1250/1250I/1450/1450I/1650-8/1650-16



Pin	RS-232	RS-422/ 4-wire RS-485	2-wire RS-485
1	DCD	TxD-(A)	---
2	RxD	TxD+(B)	---
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	---	---
7	RTS	---	---
8	CTS	---	---

Mini DB9F-to-TB* for RS-422/485 wiring

DB9F		Terminal Block
1	———	2
2	———	1
3	———	3
4	———	4
5	———	5

* An adaptor is included with the UPort 1250, 1250I, 1450, 1450I, 1650-8, and 1650-16.